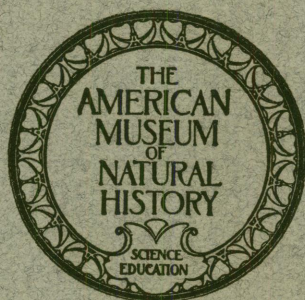


BULLETIN
OF
THE AMERICAN MUSEUM
OF NATURAL HISTORY

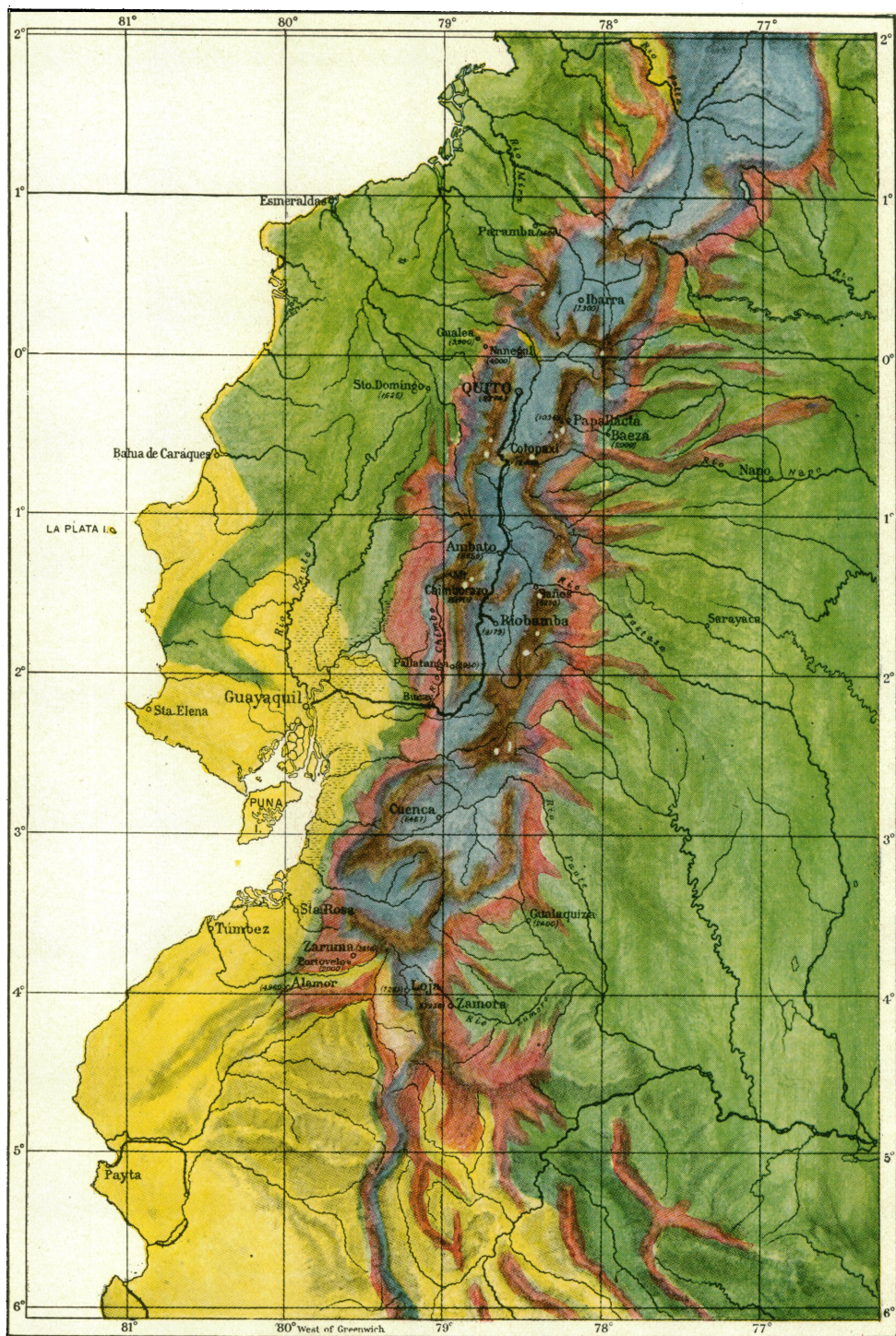
VOLUME LV, 1926

The Distribution of Bird-Life in Ecuador
A Contribution to a Study of the Origin of Andean Bird-Life

By FRANK M. CHAPMAN



NEW YORK
PUBLISHED BY ORDER OF THE TRUSTEES
September, 1926



Diagrammatic Representation of the Life Zones of Ecuador and Neighboring Areas

HUMID TROPICAL ZONE—GREEN

ARID TROPICAL ZONE—YELLOW

PARAMO ZONE—BROWN

SUBTROPICAL ZONE—RED

TEMPERATE ZONE—BLUE

BULLETIN
OF
THE AMERICAN MUSEUM
OF NATURAL HISTORY

VOLUME LV, 1926

The Distribution of Bird-Life in Ecuador
A Contribution to a Study of the Origin of Andean Bird-Life

By FRANK M. CHAPMAN



NEW YORK
PUBLISHED BY ORDER OF THE TRUSTEES
1926

Mount Pleasant Press
J. HORACE MCFARLAND COMPANY
Harrisburg, Pennsylvania

THE AMERICAN MUSEUM OF NATURAL HISTORY
SEVENTY-SEVENTH STREET AND CENTRAL PARK WEST, NEW YORK CITY

BOARD OF TRUSTEES
(As of July 1, 1926)

PRESIDENT
HENRY FAIRFIELD OSBORN

FIRST VICE-PRESIDENT
GEORGE F. BAKER

SECOND VICE-PRESIDENT
J. P. MORGAN

TREASURER
GEORGE F. BAKER, JR.

SECRETARY
PERCY R. PYNE

EX OFFICIO
JAMES J. WALKER, Mayor of the City of New York
CHARLES W. BERRY, Comptroller of the City of New York
FRANCIS D. GALLATIN, President of the Department of Parks

ELECTIVE

Class of 1926

FREDERICK F. BREWSTER
DOUGLAS BURDEN
CLEVELAND EARL DODGE

CHILDS FRICK
WILLIAM AVERILL HARRIMAN
LEONARD C. SANFORD

Class of 1927

FREDERICK TRUBEE DAVISON
MADISON GRANT
CLARENCE L. HAY

ADRIAN ISELIN
OGDEN MILLS
WILLIAM K. VANDERBILT

Class of 1928

GEORGE F. BAKER, JR.
ARCHER M. HUNTINGTON

JUNIUS SPENCER MORGAN, JR.
A. PERRY OSBORN
FELIX M. WARBURG

Class of 1929

GEORGE F. BAKER
CHAUNCEY J. HAMLIN

HENRY FAIRFIELD OSBORN
GEORGE D. PRATT
A. HAMILTON RICE

Class of 1930

GEORGE T. BOWDOIN
WALTER B. JAMES
ROSWELL MILLER

J. P. MORGAN
DANIEL E. POMEROY
PERCY R. PYNE

SCIENTIFIC STAFF

(As of July 1, 1926)

GEORGE H. SHERWOOD, A.M., Acting Director and Executive Secretary

FREDERIC A. LUCAS, Sc.D., Honorary Director

ROBERT C. MURPHY, D.Sc., Assistant Director (in Scientific Correspondence, Exhibition and Labeling)

JAMES L. CLARK, Assistant Director (in Full Charge of Preparation)

I. DIVISION OF MINERALOGY, GEOLOGY AND GEOGRAPHY

WILLIAM DILLER MATTHEW, F.R.S., Curator-in-Chief

ASTRONOMY

G. CLYDE FISHER, Ph.D., In Charge

GEOLOGY AND INVERTEBRATE PALÆONTOLOGY

W. D. MATTHEW, Ph.D., F.R.S., Acting Curator

CHESTER A. REEDS, Ph.D., Associate Curator of Invertebrate Palæontology

MINERALOGY

HERBERT P. WHITLOCK, C.E., Curator

GEORGE F. KUNZ, Ph.D., Research Associate in Gems¹

VERTEBRATE PALÆONTOLOGY

W. D. MATTHEW, Ph.D., Curator-in-Chief

HENRY FAIRFIELD OSBORN, LL.D., D.Sc., Honorary Curator

WALTER GRANGER, Associate Curator of Fossil Mammals

BARNUM BROWN, A.B., Associate Curator of Fossil Reptiles

CHARLES C. MOOK, Ph.D., Associate Curator

WILLIAM K. GREGORY, Ph.D., Associate in Palæontology

CHILDS FRICK, B.S., Research Associate in Palæontology

II. DIVISION OF ZOÖLOGY AND ZOÖGEOGRAPHY

FRANK MICHLER CHAPMAN, N. A. S., Curator-in-Chief

LOWER INVERTEBRATES

ROY WALDO MINER, Ph.D., Curator

WILLARD G. VAN NAME, Ph.D., Associate Curator

FRANK J. MYERS, Research Associate in Rotifera

HORACE W. STUNKARD, Ph.D., Research Associate in Parasitology

A. L. TREADWELL, Ph.D., Research Associate in Annulata

¹Research Associates are honorary appointments.

ENTOMOLOGY

FRANK E. LUTZ, Ph.D., Curator
A. J. MUTCHLER, Assistant Curator of Coleoptera
FRANK E. WATSON, B.S., Assistant in Lepidoptera
WILLIAM M. WHEELER, Ph.D., Research Associate in Social Insects
CHARLES W. LENG, B.S., Research Associate in Coleoptera
HERBERT F. SCHWARZ, A.M., Research Associate in Hymenoptera

ICHTHYOLOGY

WILLIAM K. GREGORY, Ph.D., Curator
BASHFORD DEAN, Ph.D., Honorary Curator
JOHN T. NICHOLS, A.B., Associate Curator of Recent Fishes
E. W. GUDGER, Ph.D., Bibliographer and Associate
CHARLES H. TOWNSEND, Sc.D., Research Associate
C. M. BREDER, JR., Research Associate
VAN CAMPEN HEILNER, F.R.G.S., Field Representative

HERPETOLOGY

G. KINGSLEY NOBLE, Ph.D., Curator
BERTRAM G. SMITH, Ph.D., Research Associate
A. B. DAWSON, Ph.D., Research Associate

ORNITHOLOGY

FRANK M. CHAPMAN, Sc.D., Curator-in-Chief
W. DEW. MILLER, Associate Curator
ROBERT CUSHMAN MURPHY, D.Sc., Associate Curator of Marine Birds
JAMES P. CHAPIN, Ph.D., Associate Curator of Birds of the Eastern Hemisphere
LUDLOW GRISCOM, M.A., Assistant Curator
JONATHAN DWIGHT, M.D., Research Associate in North American Ornithology
ELSIE M. B. NAUMBURG, Research Associate

MAMMALOLOGY

H. E. ANTHONY, M.A., Curator
HERBERT LANG, Associate Curator of African Mammals
CARL E. AKELEY, Associate in Mammalogy

COMPARATIVE AND HUMAN ANATOMY

WILLIAM K. GREGORY, Ph.D., Curator
S. H. CHUBB, Associate Curator
H. C. RAVEN, Associate Curator
J. HOWARD MCGREGOR, Ph.D., Research Associate in Human Anatomy
DUDLEY J. MORTON, M.D., Research Associate

III. DIVISION OF ANTHROPOLOGY

CLARK WISSLER, Ph.D., Curator-in-Chief

ANTHROPOLOGY

CLARK WISSLER, Ph.D., Curator-in-Chief

PLINY E. GODDARD, Ph.D., Curator of Ethnology

N. C. NELSON, M.L., Associate Curator of Archæology

CHARLES W. MEAD, Honorary Curator of Peruvian Archæology

HARRY L. SHAPIRO, Assistant Curator of Physical Anthropology

MARGARET MEAD, Ph.D., Assistant Curator of Ethnology

WILLIAM K. GREGORY, Ph.D., Associate in Physical Anthropology

CLARENCE L. HAY, A.M., Research Associate in Mexican and Central American Archæology

MILO HELLMAN, D.D.S., Research Associate in Physical Anthropology

IV. DIVISION OF ASIATIC EXPLORATION AND RESEARCH

ROY C. ANDREWS, A.M., D.Sc., Curator-in-Chief

WALTER GRANGER, Associate Curator in Palæontology

CHARLES P. BERKEY, Ph.D. [Columbia University], Research Associate in Geology¹

FREDERICK K. MORRIS, A.M. [Central Asiatic Expedition], Associate in Geology and Geography

AMADEUS W. GRABAU, S.D. [Geological Survey of China], Research Associate

CLIFFORD H. POPE, B.A. [Central Asiatic Expedition], Assistant in Zoölogy

V. DIVISION OF EDUCATION AND PUBLICATION

GEORGE H. SHERWOOD, A.M., Curator-in-Chief

LIBRARY AND PUBLICATIONS

IDA RICHARDSON HOOD, A.B., Acting Curator

HAZEL GAY, Assistant Librarian

JANNETTE MAY LUCAS, B.S., Assistant Librarian, Osborn Library

EDUCATION AND PUBLIC HEALTH

GEORGE H. SHERWOOD, A.M., Curator-in-Chief

G. CLYDE FISHER, Ph.D., Curator of Visual Instruction

GRACE FISHER RAMSEY, Assistant Curator

CHARLES-EDWARD AMORY WINSLOW, D.P.H., Honorary Curator of Public Health

MARY GREIG, Assistant Curator of Public Health

¹Appointment on the Third Asiatic Fund.

NATURAL HISTORY MAGAZINE AND ADVISORY COMMITTEE

GEORGE H. SHERWOOD, A.M., Chairman

DEPARTMENTAL EDITORS

A. KATHERINE BERGER, Assistant Editor

CLARK WISSLER, Ph.D.

FRANK M. CHAPMAN, Sc.D.

W. D. MATTHEW, Ph.D.

FRANK E. LUTZ, Ph.D.

PUBLIC INFORMATION COMMITTEE

GEORGE N. PINDAR, Chairman

GEORGE H. SHERWOOD, A.M.

WAYNE M. FAUNCE, Sc.B.

CONTENTS OF VOLUME LV

THE DISTRIBUTION OF BIRD-LIFE IN ECUADOR

PART I

	PAGE
Introduction.....	3
Acknowledgments.....	5
A Review of the History of Ecuadorean Ornithology.....	7
The American Museum's Expeditions.....	14
General Physiography of Ecuador.....	23
Distribution of Forests.....	25
General Climatic Conditions.....	26
Life-Zones of Ecuador and their Bird-Life.....	31
The Tropical Zone.....	33
The Subtropical Zone.....	74
The Temperate Zone.....	95
The Paramo Zone.....	110
Discontinuous Ranges and their Significance.....	117
Zonal Distribution by Families.....	121
General Summary and Conclusions.....	124

PART II

A Distributional List of the Birds of Ecuador.....	134
Classification and Nomenclature.....	134
Treatment of Genera and Subspecies.....	135
List of Ecuadorean Birds Described as New.....	137
North American Migrants.....	139
Scope of Data Presented.....	143
Distributional List of Species and Subspecies.....	145
Tinamidae.....	145
Cracidae.....	151
Odontophoridae.....	159
Columbidae.....	162
Opisthocomidae.....	174
Rallidae.....	174
Heliornithidae.....	180
Podicipedidae.....	180
Procellariidae.....	182
Laridae.....	185
Thinocorythidae.....	189
Charadriidae.....	190

	PAGE
Jacanidæ	501
Ædicnemidæ	202
Aramidæ	203
Eurypygidæ	203
Psophiidæ	203
Ibididæ	203
Plataleidæ	204
Ciconiidæ	204
Ardeidæ	205
Anhimidæ	209
Phœnicopteridæ	209
Anatidæ	209
Phalacrocoracidæ	213
Anhingidæ	214
Sulidæ	214
Fregatidæ	215
Phaëthontidæ	215
Pelecanidæ	215
Cathartidæ	216
Falconidæ	219
Bubonidæ	243
Psittacidæ	253
Steatornithidæ	267
Alcedinidæ	268
Momotidæ	270
Nyctibiidæ	273
Caprimulgidæ	275
Micropodidæ	279
Trochilidæ	281
Trogonidæ	328
Cuculidæ	336
Capitonidæ	341
Ramphastidæ	344
Galbulidæ	351
Buconidæ	353
Picidæ	359
Hylactidæ	372
Conopophagidæ	377
Formicariidæ	379
Furnariidæ	424
Dendrocolaptidæ	455
Tyrannidæ	471
Pipridæ	530
Cotingidæ	538
Phytotomidæ	554
Hirundinidæ	554
Sylviidæ	559
Troglodytidæ	562

	PAGE
Cinclidæ	576
Mimidæ	576
Turdidæ	577
Vireonidæ	586
Mniotiltidæ	592
Motacillidæ	604
Catamblyrhynchidæ	604
Fringillidæ	605
Cœrebidæ	637
Tersinidæ	648
Tanagridæ	648
Icteridæ	690
Corvidæ	700
Gazetteer	703
Bibliography	723
Addenda	736
Index	739

LIST OF ILLUSTRATIONS

PLATES

	FACING PAGE
I. Diagrammatic representation of the Life Zones of Ecuador and Neighboring Areas	<i>Frontispiece</i>
II. Cherrie at Work (F. M. Chapman)	6
Camp at the junction of Rios Coco and Chimbo (F. M. Chapman)	
III. Map showing Collecting Stations of American Museum's Expe- ditions	14
	FOLLOWING PAGE
IV. Punta Santa Elena (R. C. Murphy)	24
Rio Balao (F. M. Chapman)	
V. Rio Tumbes (H. Watkins)	24
Beach at Talara, Peru (H. Watkins)	
VI. Subtropical Zone at Chiral (H. E. Anthony)	24
Humid Temperate Zone at Taraguacocha (H. E. Anthony)	
VII. Portovelo (H. E. Anthony)	24
Casanga Valley (H. E. Anthony)	
VIII. Loja Valley (H. E. Anthony)	24
Zamora (H. E. Anthony)	
IX. Riobamba Valley (F. M. Chapman)	24
Quito Valley (F. M. Chapman)	
X. Guallabamba Cañon (F. M. Chapman)	24
Yanacocha, looking north (F. M. Chapman)	
	FACING PAGE
XI. La Plata Island (R. C. Murphy)	28
Santa Clara Island (F. M. Chapman)	

	FACING PAGE
XII. The Pastaza at Mera (J. H. Sinclair).....	34
Rio Napo (J. H. Sinclair)	
XIII. Chongoncito (F. M. Chapman).....	37
Savanna of Guayaquil (F. M. Chapman)	
XIV. Canelos (J. H. Sinclair).....	44
Rio Upano (J. H. Sinclair)	
XV. Subtropical Forest on Rio Chanchan (F. M. Chapman).....	75
Milligalli, L. Söderstrom's home, 1877-79	
XVI. Puente de Chimbo (F. M. Chapman).....	76
Huigra (F. M. Chapman)	
XVII. Lamor, Peru (H. Watkins).....	78
Alamor, Ecuador (H. Watkins)	
XVIII. Rio Tumbes at Pullango (H. Watkins).....	81
Palambla, Peru (H. Watkins)	
XIX. Guailabamba Cañon (F. M. Chapman).....	95
Verdecocha (F. M. Chapman)	
XX. Temperate Zone on Mojanda Mts. (F. M. Chapman).....	96
Extension of humid temperate forest into Paramo Zone (F. M. Chapman)	
XXI. Humid Temperate Zone at Tambo, Peru (H. Watkins).....	97
XXII. Cotocallao to the Mojanda Mts. (F. M. Chapman).....	98
On the Equator (F. M. Chapman)	
XXIII. Paramo Zone on Chimborazo (F. M. Chapman).....	112
Upper Paramo Zone on Chimborazo (F. M. Chapman)	
XXIV. Northwest slope of Pichincha (F. M. Chapman).....	116
XXV. Fig. 1. <i>Pyrrhura melanura pacifica</i> . Fig. 2. <i>Pyrrhura albipectus</i> (from a colored drawing by Louis Agassiz Fuertes).....	259
XXVI. <i>Cyanolestes celestis æthereus</i> (from a colored drawing by Louis Agassiz Fuertes).....	320
XXVII. Fig. 1. <i>Grallaricula costaricensis zarumæ</i> . Fig. 2. <i>Aptocryptornis lineifrons</i> . Fig. 3. <i>Grallaria watkinsi</i> (from a colored drawing by Louis Agassiz Fuertes).....	420
XXVIII. Fig. 1. <i>Xenops tenuirostris acutirostris</i> . Fig. 2. <i>Hylocryptus erythrocephalus</i> . Fig. 3. <i>Myrmoderus griseiceps</i> (from a colored drawing by Louis Agassiz Fuertes).....	440
XXIX. Fig. 1. <i>Cichlopsis chubbi</i> . Fig. 2. <i>Ramphotrigon fuscicauda</i> (from a colored drawing by Louis Agassiz Fuertes).....	577
XXX. Folding Map of Ecuador and parts of Colombia and Peru.. <i>Following Index</i>	

TEXT FIGURES

	PAGE
1. Diagrammatic section through northern Ecuador from Esmeraldas on the Pacific coast to Napo.....	22
2. Diagrammatic section through southern Ecuador from Santa Rosa to Zamora.....	24
3. Rainfall on the coasts of northern Peru and southern Ecuador.....	28
4. Colombian-Pacific and Equatorial Arid Faunas.....	38
5. Range of <i>Ostinops decumanus</i>	48

	PAGE
6. Range of the Genus <i>Osculatia</i>	53
7. Distribution of <i>Momotus momota</i>	55
8. Distribution of the Genus <i>Phænostictus</i>	57
9. Distribution of the Genus <i>Melopelia</i>	66
10. Distribution of the <i>Saltator striatipectus</i> group.....	68
11. Distribution of the <i>Melanopareia elegans</i> group.....	70
12. Range of <i>Andigena nigrirostris</i>	85
13. Distribution of <i>Compsothlypis pitiayumi</i> in South America.....	89
14. Distribution of <i>Buarremon brunneinuchus</i> and <i>B. inornatus</i>	91
15. Distribution of <i>Thamnophilus zarumæ</i>	92
16. Recorded distribution in the Andes of the Genus <i>Cistothorus</i>	108
17. Semi-diagrammatic representation of the breeding-range of <i>Cinclodes fuscus</i>	114
18. Semi-diagrammatic representation of the range of <i>Heliochera</i>	115
19. Distribution of <i>Diglossa brunneiventris</i>	118
20. Distribution of the <i>Momotus lessoni</i> group.....	126

“When on board H. M. S. *Beagle* as naturalist, I was much struck with certain facts in the distribution of the inhabitants of South America, and in the geological relations of the present to the past inhabitants of that country. These facts seemed to me to throw some light on the origin of species. . . . ” —Opening lines of “*The Origin of Species*.”

BULLETIN
OF THE
AMERICAN MUSEUM OF NATURAL HISTORY

VOLUME LV, 1926

THE DISTRIBUTION OF BIRD-LIFE IN ECUADOR
A CONTRIBUTION TO THE STUDY
OF THE ORIGIN OF ANDEAN BIRD-LIFE

BY FRANK M. CHAPMAN

SYNOPSIS

PART I

	PAGE
Introduction.....	3
Acknowledgments.....	5
A Review of the History of Ecuadorean Ornithology.....	7
Native Collectors.....	10
The Scientific Period.....	11
The American Museum's Expeditions in Ecuador.....	14
General Physiography of Ecuador.....	23
Distribution of Forests.....	25
General Climatic Conditions.....	26
Rainfall.....	27
Temperature.....	28
Influence of the Humboldt Current.....	29
Life-Zones of Ecuador and their Bird-Life.....	31
The Tropical Zone: Boundaries and Characteristics.....	33
Eastern Division.....	34
Western Division.....	36
Colombian-Pacific Fauna.....	36
Equatorial Arid Fauna.....	37
Habitats.....	41
Bird-Life of the Tropical Zone.....	42
Humid Division.....	46
Colombian-Pacific Fauna.....	54
Summary and Conclusions.....	61

	PAGE
Arid Division.....	62
Equatorial Arid Fauna.....	62
Summary and Conclusions.....	73
The Subtropical Zone: Boundaries and Characteristics.....	74
Eastern Division.....	75
Western Division.....	77
Peruvian Extension.....	77
Habitats.....	79
Bird-Life of the Subtropical Zone.....	81
Eastern Division.....	84
Western Division.....	86
Peruvian Extension.....	86
The Origin of Subtropical Bird-Life.....	87
Summary and Conclusions.....	93
The Temperate Zone: Boundaries and Characteristics.....	95
Humid Division.....	96
Arid Division.....	97
Habitats.....	98
The Bird-Life of the Temperate Zone.....	99
Humid Division.....	101
Arid Division.....	104
The Origin of Temperate Zone Bird-Life.....	106
Summary and Conclusions.....	109
The Paramo Zone: Boundaries and Characteristics.....	110
Habitats.....	110
Bird-Life of the Paramo Zone.....	111
Arid Temperate and Paramo Zone Bird-Life.....	113
Discontinuous Ranges and their Significance.....	117
Summary and Conclusions.....	121
Table of Zonal Distribution by Families.....	121
General Summary and Conclusions.....	124
The Development of Altitudinal Life-zones and the Evidence They Afford of Evolution by Environment.	

PART II

Distributional List of the Birds of Ecuador.....	134
Classification and Nomenclature.....	134
Treatment of Genera.....	135
Treatment of Subspecies.....	135
Number of Species Included.....	136
List of Ecuadorean Birds Described as New.....	137
List of Families with number of their Species and Subspecies.....	139
North American Migrants.....	139
Scope of Data Presented.....	143
Distributional List of Species and Subspecies.....	145
Gazetteer.....	703
Bibliography.....	723
Addenda.....	736
Index.....	739

THE DISTRIBUTION OF BIRD-LIFE IN ECUADOR

PART I

INTRODUCTION

Political boundaries do not, as a rule, conform to those which mark the limits of faunal areas. When, therefore, we treat of the life of a region, the confines of which have been determined by man rather than by nature, we are very apt to impose geographic restrictions which prevent an adequate treatment of our subject. On the other hand, we are so accustomed to think in terms of political geography that many excellent reasons exist for considering the life of a state or republic, for example, rather than that of a fauna or zone. It is fortunate, therefore, that in studying the bird-life of the Andes one finds so great a measure of agreement between political and physical areas that the ends of science and of convenience may equally be served by accepting the names of the republics occupying this portion of South America as the subheadings for our major theme.

Colombia, with its three sharply defined mountain ranges separated by tropical valleys, its relations with Middle America through Panama, its humid Pacific and arid Caribbean coasts, and its insular mountain mass of Santa Marta, has faunal problems which are wholly its own.

Chile, if one includes the eastern or Argentine slope of the Andes, constitutes a natural life area, and Peru, with its complex mountain ranges having arid, treeless western slopes and humid, forested eastern slopes, its highly developed river system, the broad grassy plains, marshes, and lakes of its puna or tableland, is almost a world in itself.

Ecuador connects the troubled topography of Peru with the somewhat better-ordered, but still diverse, landscape of Colombia. Sharing in part the characteristics of both, she nevertheless has sufficiently well-marked features of her own to warrant individual consideration. In continuing, therefore, our biological survey of South America by an attempt to determine the boundaries of life-zones and faunas of the Andes, through a study of the distribution and geographical origin of their birds, the volume¹ already published on the birds of Colombia may very properly be followed by one restricted to the birds of Ecuador.

¹ The Distribution of Bird-life in Colombia: A Contribution to a Biological Survey of South America. By Frank M. Chapman. Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, pp. x+729; pls., XLI: text-figs., 21.

Without attempting to draw lines which might for a moment be considered as an expression of opinion on the question of international boundaries, I have, nevertheless, been obliged to set some limits to the area covered by this work. In doing this I have been governed in part by available sources of information, and in part by natural faunal conditions. My most northern records, for example, are from the Rio Mira on the west, and from Pun on the Rio Chingual on the east. In the Oriente I have no records from east of the mouth of the Coca, or south-east of Zamora. In the south, Loja, Celica, Alamor, and Tumbes are all localities from which we have numerous specimens or authentic records. At Tumbes we are on a natural faunal boundary. At Alamor we must draw our line more arbitrarily, for the Subtropical Zone here extends well southward into Peru. When essential, however, to the proper treatment of the range of a species, I have recorded our Peruvian specimens of it. This explanation, I trust, defines with sufficient clearness the limits of the area included in this paper—about 75,000 square miles. While this is only one-ninetieth of the land area, it contains one-fourth of the bird-life of South America.

• The introduction to my work on Colombia may also serve as the prelude to the present one. Briefly stated, our problem is to ascertain the effects on the distribution and evolution of bird-life of the elevation, in comparatively recent geologic times, of a mountain system, the central base of which lies near the equator while its summits reach perpetual snow, the wings extending continuously to the Temperate Zone at the south and, with some breaks, to the same zone at the north.

Primarily, we ask, are the scores of genera and hundreds of species restricted to the life-zones above the tropics of post-Andean age? If they are not, I confess I am unable to explain their origin.

In some few instances, notably *Diglossa*, *Spinus*, *Cistothorus*, and other forms common to the upper life-zones of the Andes and Roraima, there is a hint of pre-Andean existence in the ancient Guianan highlands. In others there is a suggestion of descent from northern ancestors now extinct. But in neither case does the evidence compare in definiteness with that which is offered in support of the theory of post-Andean origin advanced beyond.

The world does not offer a more promising field for a study of the origin of zonal faunas than is to be found in the Andes. But the very magnitude of the opportunity here afforded the zoögeographer prevents him from taking complete advantage of it. Much of the area to be covered is as yet not fully known to the topographer, and detailed maps are a fundamental necessity in presenting the results of a biological

survey. There is also urgent need of a more exact knowledge of the geological history of the Andes, and particularly of the results of erosion, vulcanism, and glaciation, factors which exert a marked influence on the distribution of life at the higher elevations.

Meteorological data are also lacking, and without them it is often impossible to explain variations from the normal in zonal levels, the presence or absence of vegetation, and other causes affecting the distribution of life.

Even in our own restricted field of ornithology, we need far more information than the means at our command have enabled us to obtain. No small part of the recorded knowledge concerning the distribution of bird-life in the Andes is too indefinite for the purposes of modern zoögeography. Specimens should be labeled with the exact, not with the approximate, altitude at which they are taken. The collector of mountain faunas who writes on his labels only the locality in which his camp is situated may record from a single station the animals of two or even three distinct zones of life, and thereby hopelessly mislead the student not familiar with the region in question. Where the fauna of a large area is under consideration, it is hardly to be expected (though eminently desirable) that the zoögeographer will himself have explored the entire region thoroughly. He cannot, however, hope to interpret the many apparent violations of the laws determining the boundaries of zones and faunas or the inter-relations of the species inhabiting them without at least some field experience in the region the life of which he is investigating. The more extended this experience the more authoritative will be his work and the more fully will he realize his ignorance of conditions in regions which he has not visited.

ACKNOWLEDGMENTS

During the period of ten years over which the work of the American Museum in Ecuador has extended, we have been in receipt of many courtesies from the Government of that country to which we gratefully acknowledge our obligations. We are indebted, also, to the Hon. G. A. Bading, Mr. Ludovico Söderstrom and Señor J. Jijon y Caamaño, of Quito, Dr. H. B. Parker and Mr. Otto von Linde, of Guayaquil, and Mr. A. M. Tweedy, of the South American Development Company at Portovelo, for assistance, coöperation, or hospitality which have been of the first importance in advancing our work in the field; while at home we have to thank Messrs. Malcolm MacKay, Graham Sumner, George B. Case, D. E. Pomeroy, Benjamin Strong, Philip De

Ronde, and the late W. F. Patterson, for material support in the development of our plans.

Above all, I wish to thank the men who have helped us to secure the specimens and data which have made this volume possible. They have met with the risks and privations incident to collecting in the tropics, not for the comparatively small remuneration received, but for love of the field naturalist's life, and to them is due all credit for laying the foundation on which this work is based. With genuine appreciation I therefore record my indebtedness to William B. Richardson, Geoffrey Gill, Geoffrey O'Connell, G. H. H. Tate, Robert Cushman Murphy, H. E. Anthony, and particularly George K. Cherrie. Cherrie has made four visits to Ecuador for this museum, and on two of them it has been my privilege to have him as my companion.

Cherrie's value on an expedition is not restricted to his exceptional qualifications as a collector, but to his ability to make friends and to meet the difficulties one is certain to encounter when one leaves the main highways of travel and is required to provide his own transportation.

It was on the third of Cherrie's journeys to Ecuador that he met with a misfortune to which most men would have succumbed. He accidentally shot himself in the right arm, a full charge of No. 8 shot from a 16-gauge gun shattering the lower forearm and cutting out a portion of the ulna an inch and a half in length. At the time he was some 85 miles south of Santa Rosa. He covered this distance on foot in an attempt to catch the weekly steamer for Guayaquil, where alone he could find the surgical treatment on which his life depended. Reaching Santa Rosa several hours after the steamer had sailed, he pursued it in a canoe and overtook it at Puerto Bolivar after the bell had sounded for its departure for Guayaquil. On arriving at that city, on the fourth day after the accident, his condition was such that he was not expected to survive the night, but thanks to the skill of Dr. H. B. Parker, and his own courage, not only his arm, but his life was saved.

To Dr. Percy R. Lowe, of the British Museum, and Dr. Ernst Hartert, of the Zoölogical Museum at Tring, I am indebted for courtesies and facilities extended to me while studying the birds under their care.

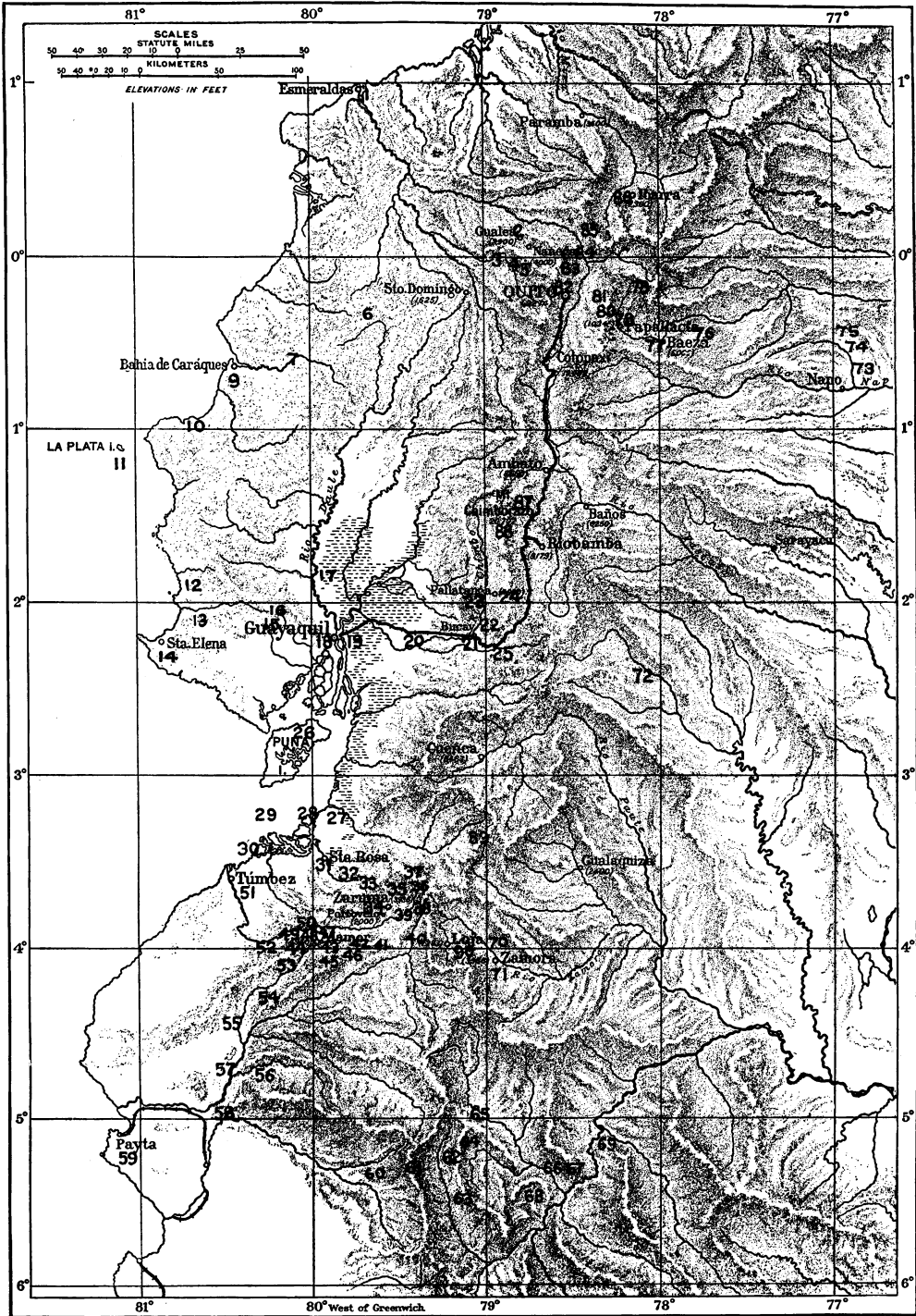
To Dr. C. E. Hellmayr, Mr. Outram Bangs, Mr. T. E. Penard, Dr. Charles W. Richmond, Mr. W. E. Clyde Todd, and Dr. Witmer Stone, my colleagues in this country, I extend cordial thanks for the unfailing kindness with which they have met my many requests for the loan of specimens and for information. To Mr. Harold E. Anthony, Dr. Robert Cushman Murphy, Mr. Waldron DeWitt Miller, Dr. James P. Chapin, Mr. Ludlow Griscom, Dr. Jonathan Dwight, Mrs.



CERRIE AT WORK, PALLATANGA (ALT. 4,900 FT.)
July, 1922.



CAMP AT THE JUNCTION OF THE RIOS CHIMBO AND COCO (ALT. 2,425 FT.)
(Subtropical Zone.) July, 1922.



COLLECTING STATIONS OF THE AMERICAN MUSEUM'S EXPEDITIONS IN ECUADOR
(Names of localities appear on back of plate.)

[Over]

LIST OF AMERICAN MUSEUM'S COLLECTING STATIONS

ECUADOR

1. Esmeraldas
2. Gualea
3. Mindo
4. Verdecocha
5. Yanacocha
6. Rio de Oro
7. Chone
8. Coast of Manaví
9. Bahía de Caraquez
10. Manta
11. La Plata Island
12. Manglar Alto
13. Colonche
14. Santa Elena
15. Chongoncito
16. Chongon Hills
17. Daule
18. Guayaquil
19. Duran (Alfaro)
20. Naranjo (Naranjito)
21. Bucay
22. Puente de Chimbo (Chimbo)
23. Junction Coco and Chimbo
24. Pallatanga
25. Huigra
26. Puna Island
27. Rio Jubones
28. Jambeli Island
29. Santa Clara Island
30. Tembleque Island
31. Santa Rosa
32. La Chonta
33. El Chiral
34. Portovelo
35. Zaruma
36. Salvias
37. Taraguacocha
38. Punta Santa Ana
39. Rio Pindo
40. Lunamá
41. Rio Casanga
42. Guachanamá
43. San Bartolo
44. Alamor
45. Guainche
46. Celica

47. Las Piñas
48. Cebollal
49. La Puente
50. Rio Pullango

PERU

51. Tumbes
52. Milagros
53. Paletillas
54. Pílares
55. Lamor
56. Chilaco
57. Samate
58. Sullana
59. Payta
60. Palambla
61. El Tambo
62. Huancabamba
63. Pucará
64. Chaupe
65. San Ignacio
66. Perico
67. Huarandosa
68. Jaen
69. Pomará

ECUADOR

70. Sabanilla
71. Zamora
72. Macas
73. Rio Suno
74. San José de Sumaco
75. Mt. Sumaco
76. Puente del Rio Quijos
77. Baeza
78. Oyacachi
79. Papallacta
80. Cerro Guamani
81. Valle Tumbaco
82. Quito
83. Pomasqui
84. Guailabamba Cañon
85. Mojanda Mountains
86. Lago San Pablo
87. Urbina
88. Chimborazo
89. Bestion
90. Loja

E. M. B. Naumburg, and Mrs. Alice K. Fraser, my associates in this museum, I am under many obligations for much valuable advice and assistance. To Dr. Dwight I owe additional thanks for facilities which have enabled me freely to use his collections, especially rich in Costa Rican birds. Mrs. Naumburg has saved me much time and labor by making preliminary identifications of most of the species treated, and Mrs. Fraser, in addition to her secretarial labors, has prepared copy for the index, and, with Mr. Miller, read the proofs.

A REVIEW OF THE HISTORY OF ECUADOREAN ORNITHOLOGY

Although Ecuador, in proportion to its size, has the richest avifauna of any South American republic, it was almost the last to receive the attention of ornithologists.

Chile had her Molina (1782) and Gay (1847); Patagonia her Darwin and Gould (1841); Paraguay her Azara (1802-5); Brazil her Wied (1830-33) and Spix (1824-25); Guiana, von Schomburgk, and Cabanis (1848); Bolivia, d'Orbigny (1835-47); and Peru, von Tschudi (1844).

As early as 1838 or 1839 dealers began to ship native-made bird skins from Bogotá to Paris, and in 1842 Prince Adelbert of Prussia found in Rio Janeiro a dealer named Besecke who employed thirty hunters and had at that time about 35,000 bird-skins in stock.¹ But there is no definite record of a bird's skin from Ecuador until 1844 when Lesson described four² species from Guayaquil, all of which are characteristic of the region and doubtless, therefore, came from the locality named.

While these were the first birds to be described as from Ecuador, the same author had previously (1831, 1832) described two Ecuadorean birds. The first, *Attagis latreillii*, was contained in a collection "expédiée de Buenos-Ayres"; the second, *Amazilia dumerilii*, was said to have come from the "provinces Septentrionales du Chili," which at that time were south of Antofagasta.

Possibly, the Hummingbird, as well as the Guayaquil specimens just mentioned, was secured through a French vessel, but the history of the specimen of *Attagis latreillii*, a species known only from the Paramo Zone of Ecuador, cannot be surmised.

While this was the first bird restricted to Ecuador to receive a scien-

¹ See Jardine, 1849, p. 42.

² *Furnarius cinnamomeus*, *Damophila feliciani*, *Arremon abeillei*, and *Rhodospingus cruentus*.

tific name, it is not improbable that the first Ecuadorean bird to be accorded this honor is *Brotogetis pyrrhopterus* described by Latham in 1802 as from Brazil, and possibly based on a captive specimen.

Meanwhile, Ecuador had been visited by such famous physicists as Condamine (1736), Bouguer (1744), von Humboldt (1802), and Bous-singault (1831), but her fauna remained unstudied.

It is doubtless to William Jameson, a Scotch professor in the University of Quito, that we owe our first scientific information concerning Ecuadorean birds. Writing in 1849, Sir William Jardine said: "We have lately received a small collection of birds from the vicinity of Quito, through the attention of Prof. William Jameson of the University there."¹

This collection contained seven species from the Temperate and Paramo Zones, of which two, *Muscisaxicola alpina* (Jard.) and *Gallinago jamesoni* (Bonap.) were new. Jameson was resident at Quito for some forty years. He was interested primarily in botany and in 1865 published a two-volume work² on the plants of Ecuador, but, as Andrew Murray, in describing new Coleoptera collected by Jameson, near Quito, wrote: "The professor seems to be one of those rarely gifted individuals whose genius embraces every branch of science. It enables him, while discharging his duties as professor of chemistry in Quito, and officially superintending the Mint of the State, also to explore the unknown regions of the country he lives in and to contribute stores of information, and valuable collections in every department of Natural History, to the Scientific world in Europe."³

From Quito as a base, Jameson explored both the western and eastern Andean slopes, as well as the country immediately surrounding his home. He went northward as far as Cayambe and down the Napo as far as Santa Rosa, using the Papallacta-Baeza trail. Although there is no record of his having made large collections of birds, he doubtless instructed and patronized native collectors, and to him, directly and indirectly, may be attributed the beginning of ornithology in Ecuador.

The fact, however, that Jameson⁴ had been resident in Quito for at least twenty years before he appears to have sent any birds to Europe, leads us to ask what influence induced him to make this shipment.

While it is probable that Jameson's interest in birds was stimulated

¹ Cont. Orn., 1849, p. 41.

² Synopsis Plantarum Æquatoriensium, Quito, 1865.

³ Edinb. Philos. Journ., 1857, p. 220.

⁴ Villavicencio, whose "Geographia de la Republica del Ecuador" was published in New York in 1858, refers to Jameson as "ilustre sabio que ha vivido entre nosotros el espacio de 20 años ocupado en investigaciones de la ciencia" (p. viii).

by Bourcier, the latter apparently did not reach Ecuador until after Jameson had sent his first lot of birds to Jardine.

The Italian explorer, Gaetano Osculati, arrived in Quito on April 22, 1847, and remained there until June 7, preparing for his voyage down the Napo to the Amazon. It is doubtful, however, if either he or Aemilio Cornalia, who accompanied him, were themselves sufficiently interested in bird-collecting to arouse in Jameson any special enthusiasm for this pursuit. Osculati's work, published in 1850, contains a nominal list of 157 species of which only 40 are from Ecuador. These are chiefly from "Quixos" and "Napo" where it is not improbable that Cornalia, who appears to have been the ornithologist of the expedition, may have taught the Indians how to make birds' skins.

In the years 1849 and 1850, Jules Bourcier, of Lyons, was resident in Quito as French Consul-General to Ecuador. He was a well-known trochilidist and, either alone or with Mulsant or DeLattre, had published numbers of papers on Hummingbirds, the first in 1839. In 1851, the year of his return to France, Bourcier published a paper containing descriptions of eleven new Hummingbirds from Ecuador, and Geoffroy Saint Hilaire adds a note to it saying that, in addition, Bourcier brought back 43 species which had already been described. In this paper we find mentioned for the first time, so far as I am aware, the names of such subsequently well-known native collecting stations as, Guala, Nanegan (= Nanegal), Archidona, Yaruqui, Calacole (= Calacali) and others. It is not probable that these localities were visited especially for Bourcier and his receipt of specimens from them indicates that native collecting was already established before he reached Ecuador.

Possibly, Villavicencio, after whom Bourcier named a new Hummingbird in 1851, may have instructed the Indians of the Napo region in the art of bird-skinning, for, while gathering material for his geography (published in 1858), he passed much time in that region. I am unable to learn from his work the date of the period in which he resided there, though he mentions being on the Rio Casanga in 1847 when he gave shelter to Osculati. (*Geographia*, p. 140.)

By 1854, bird-skins in some numbers were evidently coming from eastern Ecuador to Europe, for in that year Gould received a collection of 69 species from the Napo region, which he placed in Dr. P. L. Sclater's hands for identification. Possibly, Gould secured these birds through Verreaux Frères, of Paris, from whom, four years later, Sclater received a collection of 174 species, of which upwards of twenty were described as new. Sclater (1858a) expresses the belief that this collection was made by Villavicencio "lately resident at Puerto del Napo."

Native Collectors.—Before we approach what may be termed the scientific period in Ecuadorean ornithology, the native collector should be spoken of more specifically. Prior to 1858 it seems evident that, with the exception of the specimens collected by Jameson, most of the Ecuadorean bird-skins that fell into the hands of ornithologists were prepared by natives and were lacking in exact data. "Napo" meant anything on the Amazonian side of the Andes from the Temperate to the Tropical Zone; "Gualea" anything from the Temperate to the Tropical Zone on the Pacific side.

What Bogotá is to the commerce in bird-skins in Colombia, Quito is to a similar traffic in Ecuador. From the beginning, however, the Quito collectors, doubtless because of their contact with Jameson, Bourcier, and other naturalists resident in Quito, have supplied more definite information with their skins than was given with 'Bogotá' specimens. Whether the latter came from Orinocan or Magdalenan drainage, from the Tropical or Paramo Zone, they were known merely as 'Bogotá' skins, all shipments being made through that city. But as early as 1850–51 it will be noticed that Bourcier described Hummingbirds as from Gualea, Nanegal, Archidona, etc., data which he doubtless secured from the actual collector of the specimens. There has been no such contact between the Bogotá collectors and ornithologists.

For the past forty or more years, Mr. Ludovic Söderstrom, Swedish Consul-General, has been a constant patron of native collectors and has used his influence to induce them to label their specimens with locality and sex. As a result of Mr. Söderstrom's efforts, many native skins are encircled by a band of paper—usually newspaper—bearing a locality and the letter "M" (*macho*, male) or "H" (*hembra*, female). While, as a whole, these data make "Quito" specimens of greater scientific value than those coming through Bogotá, the apparent definiteness of their labeling may lead the faunalist astray if the data be accepted too literally.

It may be taken for granted that specimens labeled Gualea came from the Pacific slope, and those labeled Baeza from the Atlantic slope, but it does not follow that all the birds in the first lot came from Gualea or all those in the second from Baeza. All the stations commonly frequented by the native collectors, who make their headquarters at Quito, Gualea, Nanegal, Mindo, Baeza, etc., are in a sense little 'Bogotá's'; that is, they are centers for territories of varying extent.

For example, I chanced in August, 1922, to be visiting Mr. Söderstrom when a native collector arrived from Mindo with a collection of some 500 specimens. I questioned the man closely about his head-

quarters and found that they were somewhat below the settlement of Mindo, on the Rio Blanco. But when the birds were spread out before me I found species of the Paramo and Temperate as well as of the Subtropical Zone. Holding up a skin of *Grallaria monticola*, I asked: "Did you get this at Mindo?" To which, without a moment's hesitation, the collector replied: "Oh no, Señor, that I shot on the road crossing Pichincha." The same answer explained the presence of several other higher zone birds in the collection, and it was evident that he had begun to collect the day he left Quito and had lost no opportunity to secure specimens all the way from Quito to his camp. The entire collection, however, was said to have come from Mindo in the lower part of the Subtropical Zone. The statement was made, not with intent to deceive, but simply through a failure to appreciate the importance of accuracy.

A further source of error in the data accompanying native-made skins lies in the possibility of interchange of the paper bands on which it is written. These bands are not attached to the birds, and, when they slip off, or are removed to permit of examination of the skin, they may be placed on another skin. In short, the data supplied by native collectors, while usually approximately correct, cannot be absolutely depended upon, and no publication based in whole or part on such skins is without incorrect statements in regard to locality.¹

The Scientific Period.—The novelties revealed by native collectors and the fact that Ecuador was a nearly virgin field, doubtless combined to focus the attention of an increasing number of students of neotropical birds on that country. As a result, the region so long neglected became a Mecca for trained collectors who have made it, with Peru, one of the more thoroughly worked parts of tropical America.

This corps of professionals was led by Louis Fraser who reached Ecuador in the autumn of 1857, and remained in the field until December, 1859. Fraser worked at numerous localities in all four life zones, from Zamora in southeastern Ecuador, to Esmeraldas, in northwestern Ecuador, and the outcome of his labors, as presented by Dr. P. L. Selater (1858b, 1858c, 1859a, 1860a, 1860b, 1860c, 1860d, 1860e, 1860f), gave the world its first real knowledge of Ecuadorean bird-life. Furthermore, Fraser was one of the first collectors of his type to visit South America. There had been explorers like d'Orbigny and Schomburgk, expedition naturalists like Darwin, and general collectors and field students like Wallace and Bates, but I do not recall anyone who more nearly approaches the modern collector than did Fraser.

¹ See Bibliography: 1869, Lawrence; 1880, Buckley; 1889, Allen; 1899a, 1899b, 1900, Salvadori and Festa; 1907, Simon; 1908 and 1911, Menegaux; 1922, Lönnberg and Rendahl.

While James Orton, who visited Ecuador in 1867, added but little to our knowledge of Ecuador's birds, his explorations and the accessible form in which their results (1871) were presented increased our knowledge of the country itself. The same remarks apply to the travels of Whymper, in Ecuador, in 1879, and to his report upon them. In spite of the unfortunate manner in which Buckley made his great collection of Ecuadorean birds (see Bibliography, 1880), the fact remains that he added many species to the known avifauna of the country. Of these more than a score were new to science, and several of these have not been taken subsequently.

Very different indeed was the work of Siemiradski and Stolzmann, whose descriptions of the regions visited and carefully labeled specimens show them to have been trained naturalists. Berlepsch and Taczanowski were equally well prepared critically to examine these collections, and the published reports upon them (1883-85) form one of the most important series of papers on Ecuadorean ornithology.

Rosenberg's explorations in northwestern Ecuador were important in themselves, and also through the activity of his collectors, Flemming and Miketta. To Hartert's papers (1898, 1902) on the work of these three men we are indebted for all we know of the bird-life of the rich Paramba region.

The most important natural history explorations conducted by a single individual in Ecuador were made by Dr. E. Festa between October 6, 1895, and January 5, 1898. Dr. Festa's itinerary, which is given in the Bibliography, includes both the eastern and western Tropical Zone and central Ecuador from Cuenca to the Colombia boundary, which short-sighted Colombian officials prevented him from crossing.

Salvadori, with Festa's collaboration, published (1899-1900) an authoritative report on the 2,892 specimens of 611 species secured by Festa, and Festa himself issued in book form a narrative of his journey (1909).

Next to that of Festa, the collection made by Goodfellow and Hamilton is the most valuable secured by a single expedition in Ecuador. With headquarters at Quito, they collected on both the eastern and western slopes, and at the end of a year (July, 1898-August, 1899) left the country by way of the Napo. Goodfellow's report on the 4,000 specimens secured is distinguished by his notes on habits and local distribution. The identifications are not always as authoritative as might be desired, but the paper is a notable contribution to our knowledge of Ecuadorean bird-life.

For the succeeding decade, the publications on Ecuadorean birds were based chiefly on the work of native collectors, but, in 1911, S. N. Rhoads, of Haddonfield, N. J., accompanied by R. S. Lemmon, spent nearly five months in Ecuador and collected at the following localities: February 13-23, 1911, Huigra; February 23-March 14, junction of Chanchan and Chiguancay rivers (alt. about 2,800 ft.); March 19-27, June 30-July 4, Pagma Forest above Huigra; April 10-17, mountains above Chambo southeast of Riobamba; April 26-May 19, El Rosario and above on upper slopes of Pichincha; May 26-June 2, Cumbaya, near Quito; June 9-30, Bucay, west base of Andes.

Mr. Rhoads' collection of specimens was acquired by the Academy of Natural Sciences of Philadelphia, where it was to form the basis of a report by Dr. Witmer Stone. With characteristic generosity, however, Dr. Stone, on learning of our more extensive plans for a paper on Ecuadorean birds, generously turned his notes over to me, and Rhoads' specimens are therefore recorded in this Bulletin.

Two years after Rhoads' visit, the American Museum extended the field of its operations from Colombia to Ecuador, inaugurating explorations only just concluded, as will be mentioned below. Meanwhile, Charles Chubb (1919) published two parts of a report (Tinamous to Hawks) on collections made by P. O. Simons, who, as mammal collector, visited southern Ecuador for the British Museum in 1898-99; and by Walter Goodfellow, who in 1914 returned to the scenes of his earlier labors at Gualea and Baeza.

Although for forty years and more Mr. Ludovic Söderstrom had exerted an important influence on bird-collecting in Ecuador, it was not until 1922 that this found published expression. In that year, Lönnberg and Rendahl issued their admirable report on a collection representing 436 species and subspecies secured by Söderstrom from native collectors and presented by him to the Zoölogical Museum at Stockholm.

Summarizing this review, it is evident that since about 1850, resident native collectors have been continuously at work in Ecuador, and that beginning with Fraser, in 1858, foreign collectors have sought its ornithological treasures. Colombia, through Bogotá, may have supplied more bird-skins to the world than Ecuador, but (excluding Santa Marta) she has attracted comparatively few visiting ornithologists. Peru, on the other hand, through the efforts of von Tschudi, Sclater and Salvin, Taczanowski, and von Berlepsch, has been explored by numbers of trained collectors, but, singularly enough, has never developed native collectors such as have made Bogotá and Quito famous in the annals of ornithology. It is probable, therefore, that Ecuador has been more fully

explored by bird collectors than any other Andean republic. Nevertheless, so varied is her topography, so correspondingly numerous and circumscribed are her 'ecologic niches,' so difficult of access the areas of her greatest faunal riches, that years will pass before we shall have a thorough knowledge of her bird-life.

THE AMERICAN MUSEUM'S EXPEDITIONS IN ECUADOR

Thanks chiefly to the admirable work of Wolf, the regions visited by us in Ecuador are, for the most part, too well known to require further description. Moreover, the general characters of our collecting stations are given from the faunalist's point of view in the annotated list of localities at which birds have been secured in Ecuador. It will facilitate reference, therefore, and at the same time convey all needed information if I present here only an outline of the routes followed by our various representatives in Ecuador, together with a chronological list of their collecting stations, dates when present, and number of specimens secured.

Before our explorations in Colombia were completed, William B. Richardson inaugurated our work in Ecuador. Richardson, who had been collecting in southwestern Colombia, sailed from Tumaco on October 14, 1913, and reached Esmeraldas three days later. He at once began operations in the vicinity and later went as far as 28 miles up the Esmeraldas River.

Richardson was instructed to proceed southward through the coastal region with the especial object of discovering the southern limits of the Colombian-Pacific Fauna and northern limits of the Equatorial Arid Fauna.

From Esmeraldas he went to Rio de Oro to determine the western margin of first-growth tropical forest, and he collected on the coast of Manaví, at Bahia de Caraquez and at Manta. From this point he visited La Plata Island in order to learn the relationships of its fauna with that of the mainland. Returning from the island to Machalilla, he proceeded to Guayaquil by way of Manglar Alto and Punta Santa Elena, but did no collecting until he reached Puna Island. Thence he returned to Guayaquil and went up the Daule and eastward along the railroad to Naranjo. Feeling the need of climatic change, he then went to Quito, and, while resident there, purchased numbers of specimens from local collectors. After a month he took the field again, spending three weeks on the upper slopes of Chimborazo.

Returning thence to the coastal region, Richardson secured a representative collection about Guayaquil, and then sailed southward to Santa Rosa, to make from that point a section through the Andes to the base of the eastern Andes, with the object of discovering a source of the Amazonian forms which occur on the Pacific coast. The stations on this survey beyond Santa Rosa were above Zaruma, Loja, and Zamora, at the junction of the Tropical and Subtropical Zones on the eastern slope of the Andes.

In 1916, while *en route* to the Urubamba Valley of Peru and a general reconnaissance thence southward to Santiago, I stopped in Ecuador, accompanied by George K. Cherrie, to secure material for a Habitat Group representing the bird-life of the Paramo Zone on Mt. Chimborazo. We made our base at Urbina whence we ascended to snow-line, discovering that an arm of the Mocha Cañon carried the stunted growth of the upper humid Temperate Zone to an altitude much above the normal lower level of the Paramo Zone. Brief stops were also made at Duran, Huigra, Latacunga, and Quito.

From 1916 to 1920, our work in Ecuador was suspended, but in 1919 Harry Watkins, with the object of discovering the southern limit of both the humid Tropical and Subtropical Zones, traveled from Payta to Alamor in extreme southwestern Ecuador, discovering there a well-marked subdivision of the Subtropical which has since yielded us so many new forms.

To explore this region and other parts of southern Ecuador more fully, as well as to gather further material along the Zaruma-Zamora section, Harold E. Anthony, Associate Curator of New World Mammals, and George K. Cherrie went to Ecuador in May, 1920, and remained until January, 1921. They made their headquarters with the South American Development Company in Portovelo, where we have always been so hospitably received and so effectively assisted. From this point they explored the surrounding region, the country about Alamor, and, as planned, the region between Zaruma and Zamora, as well as the Paramo about Bestion, securing large collections and information of much importance concerning the character of the country.

The exceptionally interesting fauna of southwestern Ecuador seemed to demand still further attention, and to complete our work there, Cherrie returned to Ecuador in June, 1921, with Geoffrey Gill as his assistant. While awaiting a boat from Guayaquil to Santa Rosa, collections were made at Chongoncito in the arid Tropical Zone near Guayaquil and later in the same zone at Santa Rosa. A representative series was also secured at La Chonta between Santa Rosa and Portovelo.

Returning to our former headquarters at the last-named place, preparations were made for the trip to the Alamor-region. This was reached in mid-August, and work was actively pushed here and in the vicinity until September 21, when Cherrie met with a nearly fatal accident as recounted elsewhere.

After this date, Gill, with G. H. H. Tate, who, as a representative of the Mammal Department, had joined the expedition in August, remained in southwestern Ecuador until the latter part of October. He then returned to Santa Rosa and collected there, on Jambeli Island, and on the Rio Jubones, until November 10. Reaching Guayaquil, he went to Bucay at the base of the Andes and thence proceeded to Santa Elena for specimens of the birds which characterize this exceedingly arid region.

In July, 1922, accompanied by George K. Cherrie and Geoffrey O'Connell, I returned to Ecuador, largely with the purpose of visiting certain areas which presented complex faunal conditions. We went first to the Chongon Hills, a humid strip in the Equatorial Arid Fauna, and on this short reconnaissance were fortunate in having with us Dr. Herman Parker, of Guayaquil.

Thanks to the good offices and coöperation of Mr. Tweedy, the serviceable launch 'Carolina' was made available for a survey of both shores of the Gulf of Guayaquil south to Tembleque Island. On this trip we added a surprising number of birds to the known fauna of Ecuador and found non-breeding northern shore-birds present in large flocks.

We next investigated conditions at Puente de Chimbo where there is a remarkable assemblage of humid tropical and subtropical forms and from this point worked up the Chimbo Valley in search of *Buarremon inornatus* to Fraser's old station at Pallatanga.

During part of August we were the guests of Mr. Söderstrom, friend of all naturalists, at Quito. This gave us an opportunity to visit the classical collecting localities in the vicinity, examine Söderstrom's large collections, from which he permitted us to take such specimens as we chose, and to become acquainted with the native collectors and their methods. We also traced the ranges of certain arid Temperate Zone forms north to the Guallabamba Cañon, studied the inosculation of the humid Temperate and Paramo Zones on the Mojanda Mountains and Mt. Pichincha, and the meeting of the Subtropical, and humid Temperate Zones above Mindo. On the last-named trip we took with us Ramon Olalla, a member of a family of professional bird collectors, and thereby established a most profitable connection.

The quickness with which Ramon learned our methods of the preparation of bird-skins, and apparently appreciated the importance of care in sexing and accuracy in locality labeling, induced us to employ him, together with his father and three brothers, under the firm name of "Olalla e hijos." The Olallas were employed to visit the little-known region of Mt. Sumaco with the especial object of ascending this almost mythical mountain.

Within two years they had fulfilled their contract, and we now have in the museum a collection of beautifully prepared birds' skins which adequately illustrate the avifauna of the region from which the mountain rises and also the life-zones on its slopes. Among them are numbers of species not before contained in the museum, and several, including one genus, new to science.

Knowing that the Guacamayo range, which connects Sumaco with the main Andean chain, does not rise above subtropical elevations, we had hoped that the Temperate Zone on Sumaco would prove to be wholly insular in character. But its bird-life is practically identical with that of the corresponding zone on the eastern Andes, and this close faunal affinity implies near orographic relationship.

We supplied the Olallas with a thermometer and requested them to make daily records of the temperature at sunrise and at sunset. These records, in connection with their collections, give us a fairly accurate conception of the limits of life-zones. When, for example, in ascending the Rio Suno, they reached the old town of San José on the flanks of Sumaco, the birds sent to us indicated that they had reached the lower borders of the Subtropical Zone, and this supposition was supported by the temperature record which shows a fall of 4° C. (from 18° C. to 14° C. = 64.4° F. to 57.2° F.) in the morning and of 5 degrees (from 21° C. to 16° C. = 69.8° F. to 60.8° F.) in the evening.

Similarly, at the localities from which were sent birds characteristic of the Temperate Zone, the morning temperature fell to 6° C. (42.8° F.) and the evening temperature to 10° C. (50° F.).

The Olallas also kept a record of their itinerary. It gives, as a rule, only a date and place, or the briefest explanation of the cause of some delay, but one familiar with the conditions they were obliged to encounter can read between the lines the story of events which less-seasoned travelers would have made the basis of tales of hardship and adventure. Here, for example, is a quotation from the account of their return from the Rio Suno, near the base of Sumaco, toward Quito.

"El veintiseis de Abril emprendimos viaje para Quito haciendo las jornadas siguientes. El veintiseis llegamos al Rio Huataraco, el 27, el 28,

el 29, nos detuvo dicho río ha motivo de la creciente. El treinta llegamos al Río Tucuno. El 1, el 2, el 3 paramos detenidos por este caudaloso río. El cuatro llegamos a un lugar llamado Huayrachina. El cinco llegamos al Río Cotapino es decir a las cabeceras, el seis llegamos al Río Bueno. El 7, el 8, el 9, el 10, el 11, nos detuvo este mismo por sus fuertes crecientes. . . ."

Which freely translated reads: "April 26, 1923, we began our trip toward Quito, making the following daily journeys: The 26th, we reached the Río Huataraco. The 27th, 28th, and 29th, we were detained by flood in this river. The 30th, we reached the River Tucuno. The 1st, 2nd, and 3rd of May we were detained by this great river. The 4th, we reached a place called Huayrachina. The 5th we reached the headwaters of the Río Cotapino. The 6th we reached Río Bueno. The 7th, 8th, 9th, 10th and 11th we were detained by heavy floods in this river."

These entries show that eleven of the first sixteen days of their journey were passed waiting for rivers to fall to fordable depths. Doubtless the only shelters available were palm-thatches erected by themselves. The country offers no dependable food-supply, and a five-day journey which is expanded to sixteen days implies, where one's back is the only means of transportation, an uncomfortable shortage of rations.

Reaching Archidona on May 17, they were detained for lack of carriers until June 6 and finally reached Quito on June 14. It may be added that the care with which the Olallas recorded their localities is further attested by comparison of their daily journals with that of Capt. G. M. Dyott who in 1924 ascended Mt. Sumaco.

In addition to the specimens and information gathered by expeditions whose primary object was the collection of birds, we have to thank Mr. Anthony of the Department of Mammals for permitting his representative, Mr. G. H. H. Tate, to secure for us a number of birds at localities the faunal affinity of which could be determined only by a definite knowledge of their life. Thus it would have been impossible to say whether the higher portions of the Sierra Colónche and Cerro Pato de Pajaro, on the coast, were tropical or subtropical, but Tate's specimens are all characteristic of the first-named zone. Other localities from which Tate brought specimens are recorded in connection with the species to which they belong.

In January and February, 1925, Dr. Robert Cushman Murphy and Mr. Van Campen Heilner made a reconnaissance at Talara, Peru, and along the Ecuadorean coast from Santa Clara Island to La Plata Island, adding several marine species to the known avifauna of Ecuador and securing information concerning the occurrence of others.

In addition to the specimens collected by our own expeditions or representatives, we have a large number purchased from time to time from native collectors and taken chiefly in the Quito region. The total number of Ecuadorean specimens in the Museum, therefore, is somewhat over 13,500. For use in connection with the study of this material we have adequate collections from both Colombia and Peru, particularly from those portions of these countries which adjoin Ecuador.

Of the 1,357 species and 151 subspecies herein recorded from Ecuador, all but 33 are represented in the Museum's collections, in most instances by Ecuadorean specimens.

SUMMARY OF THE AMERICAN MUSEUM'S EXPEDITIONS

1912-13—W. B. RICHARDSON

PLACE	DATES	NO. OF SPECIMENS
Esmeraldas and vicinity	Oct. 17-Dec. 6	801
Chone, Manaví	{ Dec. 14, 1912,—Jan. 4, 1913 } { Feb. 2-13, 1913 }	347

1913—W. B. RICHARDSON

Rio de Oro	Jan. 7-30	291
Coast of Manaví	Feb. 11-22	83
Bahia de Caraquez	Feb. 23-28	61
Manta	March 5-10	45
La Plata Island	March 13-19	55
Puna Island	March 31-April 12	196
Daule	April 20-30	145
Naranjo	{ May 6-24 } { Dec. 11-30 }	208
Chimborazo	June 23-July 14	215
Duran (Alfaro)	Aug. 2-12	58
Guayaquil	Aug. 14-28	223
Santa Rosa	{ Sept. 8-12 } { Nov. 21-Dec. 7 }	162
Near Zaruma	Sept. 15-Oct. 5	373
Loja	{ Oct. 11-14 } { Nov. 8-12 }	120
Zamora	Oct. 17-Nov. 6	196

1916—F. M. CHAPMAN AND GEORGE K. CHERRIE

Duran (Alfaro)	May 21	10
Huigra	May 23	3
Urbina and upper Mocha Cañon	May 27-30	48

1919—H. WATKINS

Alamor	July 7-14	83
Pullango	July 16, 17	28

1920—GEORGE K. CHERRIE

PLACE	DATES	NO. OF SPECIMENS
Duran (Alfaro)	July 3-6	53
Portovelo	{ July 11-18 Aug. 6-8 Aug. 31-Sept. 3 }	201
El Chiral	July 20-Aug. 4	194
Salvias	Aug. 10-13	112
Taraguacocha	Aug. 15-26	167
Rio Pindo	Sept. 4-7	59
Rio Casanga	Sept. 12-19	126
Celica	Sept. 21-28	85
Alamor	Sept. 30-Oct. 5	113
Guachanamá	Oct. 7-11	32
Loja	Oct. 30-Nov. 2	18
Sabanilla	Nov. 6-20	147
Zamora	Nov. 21-Dec. 4	188
Punta Santa Ana	Dec. 7-23	102

1921

Bestion	Jan. 2-16	101
---------	-----------	-----

1921—GEORGE K. CHERRIE AND G. GILL

Chongoncito	July 6-21	129
Santa Rosa	{ July 15-20 Oct. 21-27 }	251
" " (Gill)		
La Chonta	July 22-28	158
Portovelo	July 30-Aug. 9	114
Lunamá	Aug. 12-14	51
Guainche	Aug. 25-29	121
San Bartolo	Sept. 3-6	115
Alamor	{ Aug. 14-31 Sept. 4-20 }	385
Las Piñas	Sept. 8-15	116
Cebollal	Sept. 21-Oct. 8	150

GEOFFREY GILL

La Puente	Oct. 8-11	28
Rio Pullango	Oct. 11-17	35
Jambeli Island	Oct. 31-Nov. 4	43
Rio Jubones	Nov. 6-10	60
Bucay	Nov. 20-Dec. 7	193
Santa Elena	Dec. 13-19	59
Colonche	Dec. 20	7

1922—F. M. CHAPMAN, GEORGE K. CHERRIE, AND G. O'CONNELL

Chongon Hills	July 10-13	27
Puna Island	July 15-17	25
Jambeli Island	July 18	21

1922—F. M. CHAPMAN, GEORGE K. CHERRIE, AND G. O'CONNELL, *continued*

PLACE	DATES	NO. OF SPECIMENS
Tembleque Island	July 18	12
Santa Rosa	July 19	12
Bucay	July 25	11
Rios Coco and Chimbo	July 27-31	50
Pallatanga	July 29, 30	38
Chimbo	July 31-Aug. 4	93
Quito and vicinity	Aug. 17-22	46
Pomasqui	Aug. 25	5
Mojanda Mts.	Aug. 28	9
Yanacocha	Sept. 2, 3	51
Verdecocha	Sept. 5-7	38

1922—OLALLA AND SONS

Near Mindo	Aug.	12
Papallacta	Sept. 6, 7	10
Baeza and vicinity	Sept. 10-Dec. 24	447
Cerro Guamani	Oct. 25; Dec. 6	7
Oyacachi and vicinity	Aug. 2-Nov. 6	531

1923—OLALLA AND SONS

Oyacachi and vicinity	{ Jan. 17-Feb. 6 }	585
	{ Aug. 2-12 }	
	{ Sept. 25-30 }	
	{ Oct. 2-8 }	
Below San José de Sumaco	March 3-31	165
San José de Sumaco	March 10-31	40
Rio Suno above Avila	Feb. 1-April 30	810
Cerro Huamani	July 18, 19	38
Puente del Río Quijos	July 24	8
Rio Sardinas	July 23-31	26
Baeza and vicinity	Sept. 15-Oct. 9	258
Papallacta	July 22; Sept. 13; Oct. 26	52
Tumbaco	Oct. 10-12	57
Mindo and vicinity	July 21-Aug. 18	177
Lower Sumaco	Dec. 1-27	123

1924—OLALLA AND SONS

Lower Sumaco	{ Jan. 20-30	248
	{ March 7; 29	15
Rio Suno	March 3-April 16	582
Below San José de Sumaco	March 22-April 24	683
Upper Sumaco	{ Feb. 1-18	100
	{ May 24-31	134
	{ June 1-15	148

1925—R. C. MURPHY AND VAN CAMPEN HEILNER

Santa Clara Island	Feb. 26	6
Punta Santa Elena and vicinity	Feb. 12-16	15
La Plata Island	Feb. 18	7

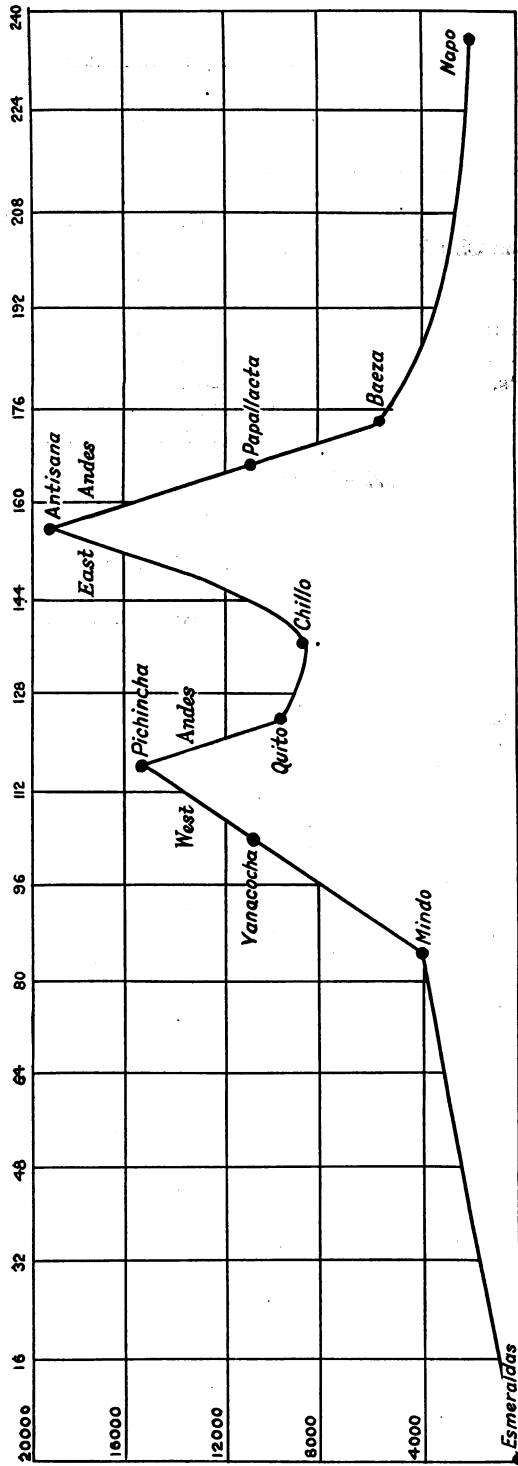


FIG. 1. Diagrammatic section through northern Ecuador from Esmeraldas on the Pacific coast to Napo
Horizontal scale in miles. Vertical scale in feet

GENERAL PHYSIOGRAPHY OF ECUADOR

The physiography of Ecuador is far less complex than that of Peru or Colombia. In place of several ranges of mountains separated by rivers flowing northward in deep valleys some hundreds of miles in length, the Andes in Ecuador are constricted to one broad main chain, the summit of which—except in the southern part of the republic—cradles a Temperate Zone tableland, flanked on the east and on the west by peaks and ridges which rise above snow-line or to the level of the Paramo Zone.

A series of transverse ranges, locally known as *nudos* or knots, rising usually to the Paramo, connect these higher eastern and western parts of the main chain and divide the tableland into a number of interandine valleys. Thus we have the valleys of Cuenca, Riobamba, Latacunga, Quito, etc. These valleys are the birthplace of rivers which, flowing easterly, enter that vast system of streams which are tributary to the Amazon, or, flowing westerly, soon find their way to the Pacific. In no instance, however, is a valley drained both toward the east and toward the west.

A section through Ecuador, eastward from Guayaquil, crosses the alluvial lowlands over first the arid then the humid portions of the Tropical Zone, ascends the Andes through the Subtropical and humid Temperate Zones to the Paramo Zone on the summits of the western Andes not occupied by snow, descends through this zone to the arid Temperate Zone of the intermontane tableland to climb upward again on its eastern side to the Paramo Zone of the eastern Andes, whence a descent is made into the forests of the humid Temperate, Subtropical, and humid Tropical Zones of eastern Ecuador.

In its major aspects, this section will answer for all of Ecuador north of the Rio Jubones. South of that river the mountain system of the country is more complex. A section from the mouth of the Rio Santa Rosa to Zamora, for example, passes through the mangroves of the littoral and a narrow strip of the Equatorial Arid Fauna to the humid tropics, ascends the heavily forested western slope of the coastal Andes to the Subtropical Zone, descends its arid eastern slope to the Portovelo Valley on the Rio Tumbes drainage with pronounced Equatorial Arid faunal affinities.

The western slope of the succeeding range is largely arid but with humid pockets (for example, at Punta Santa Ana, alt. 4,000 ft.), and arid conditions prevail to the Catamayo Valley which, although separated from the coast by two mountain chains, is still on Pacific drainage

and, like the Portovelo Valley, has strong traces of the Equatorial Arid Fauna.

The succeeding range (third from the west coast) is crossed at an altitude of 9,400 feet and, still passing through an unforested country, we enter the Loja Valley (alt. 7,200 ft.) and for the first time are on Amazonian drainage. But one range now separates us from slopes which extend into Amazonia. This is crossed at an altitude of 10,400

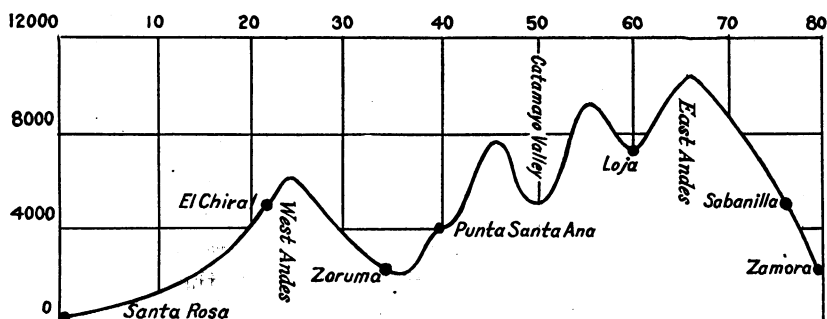


FIG. 2. Diagrammatic section through southern Ecuador from Santa Rosa to Zamora
Horizontal scale in miles. Vertical scale in feet

feet through the Paramo Zone whence we successively descend through forests of the humid Temperate and Subtropical Zones into those of the tropical lowlands.

This mere outline of Ecuadorean topography is presented with the object of conveying the impression that, except in the southern part of the republic, the Andes in Ecuador consists of but one system with an eastern, or Amazonian, and a western, or Pacific slope.

To attempt to add details to this sketch would involve us in a maze of descriptions of innumerable subsidiary ranges; and when we had written all that was known we should have confused the issue without completing the picture.

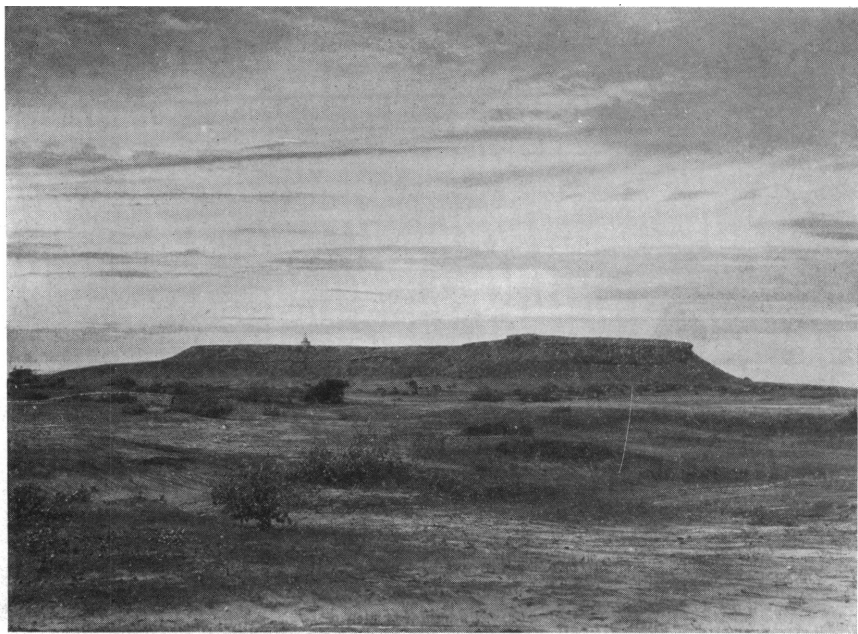
Ecuadorean orography is so inconceivably complex in detail that only a person who has experienced the difficulties of travel in her mountains can realize the magnitude of the task which awaits the topographer.

The vast region east of the Andes is known chiefly where it is traversed by navigable streams. We have been led to picture eastern Ecuador as a part of the Amazonian basin, but it is evident that spurs of the Andes extend far out beyond the main range. Macas, for example, has an altitude of nearly 3,500 feet, while San José, on Sumaco, some

VIEWS OF FOURTEEN AMERICAN MUSEUM COLLECTING STATIONS IN THE TROPICAL, SUBTROPICAL AND TEMPERATE ZONES

The following plates (IV-X) include fourteen views arranged geographically of characteristic country in the regions explored by the American Museum's expeditions. Beginning on the coast at Santa Elena, we go southward through the Arid Equatorial Fauna to the eastern shore of the Canal de Jambeli, thence to the mouth of the Rio Tumbez, and below it to the absolutely arid Peruvian coast at Talara.

Returning to Santa Rosa, we cross the Andes to Amazonia (see Fig. 2, p. 24) ascending first to El Chiral in the Subtropical Zone, and Taraguacocha in the humid Temperate Zone of the West Andes, and descending to Portovelo near the border of the Subtropical Zone and Equatorial Arid Fauna, and the Casanga Valley in the last-named Fauna. Crossing the interior ranges to Loja, we mount the East Andes and descend to Zamora at the border of the Subtropical and humid Temperate Zones of Amazonia. We now make a long jump to the arid Temperate Zone on the interandine plateau and show two characteristic views, one in the Riobamba Valley, with Mt. Chimborazo in the background, the other in the more fertile valley of Quito. We continue in the interandine Temperate Zone to the borders of the Guallabamba Cañon, a highway from the tropics up which some coastal forms appear to have reached the tableland. Thence we return to Cotacallao, a few miles north of Quito, cross to the northwestern slope of Pichincha and view the magnificent confusion of ranges in which lie hidden Mindo, Gualea, Nanegal, Nono, and other classic collecting stations on the western slope of the Andes.

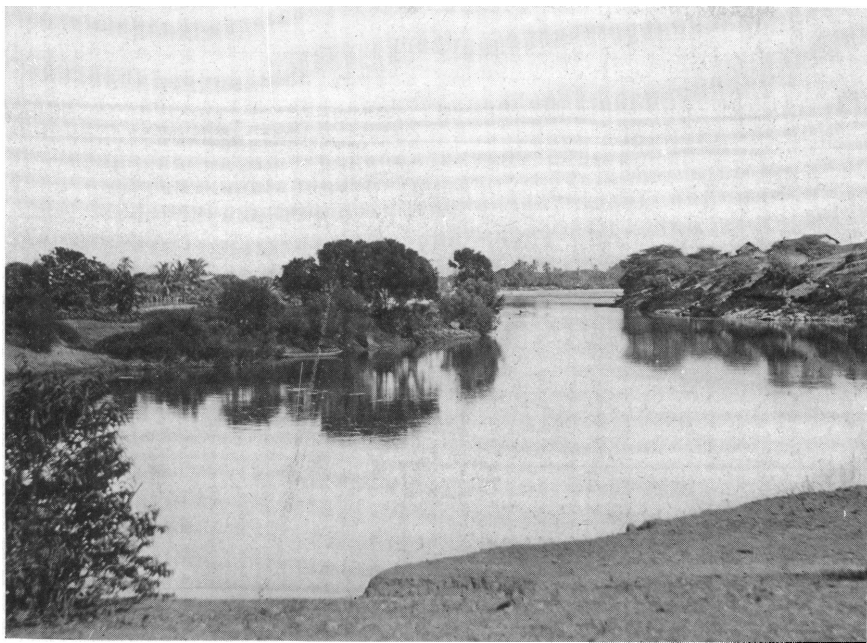


PUNTA SANTA ELENA FROM THE PENINSULA
(Equatorial Arid Fauna.) February, 1925.



RIO BALAO

Passing through the 'gallery' forest of water-fed trees near the mouth of the river.
(Equatorial Arid Fauna.) July, 1922.



RIO TUMBEZ AT FOOT OF TOWN
Southern limit on the coast of the Equatorial Arid Fauna. July, 1919.



BEACH AT TALARA, PERU
Near the northern end of the arid Peruvian coastal region. August, 1919.



EL CHIRAL
(Subtropical Zone.) July, 1920.



TARAGUACOA (ALT. 9,750 FT.)
(Humid Temperate Zone.) August, 1920.



PORTOVELO (ALT. 2,000 FT.)
(Equatorial Arid Fauna and Subtropical Zone.) July, 1920.



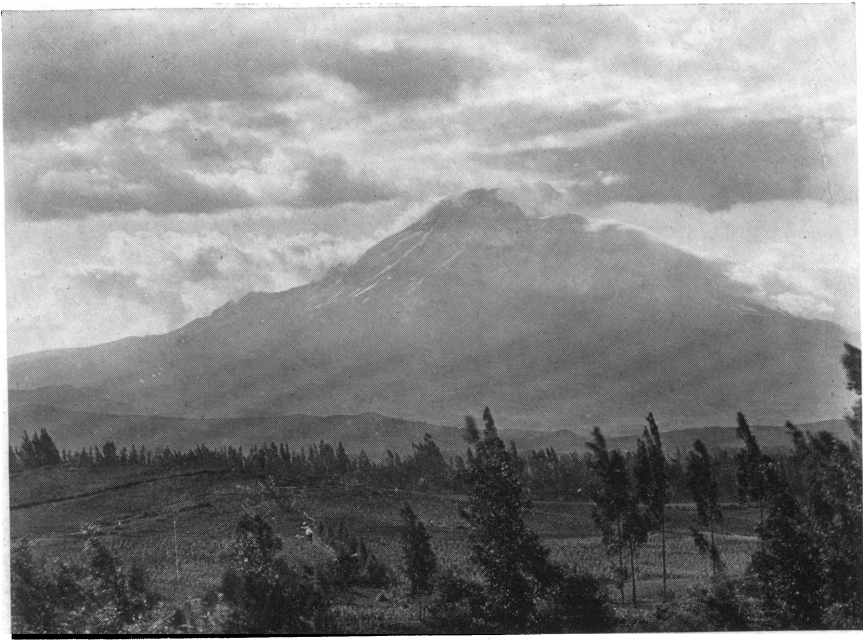
CASANGA VALLEY (ALT. 2,900 FT.)
(Equatorial Arid Fauna.) September, 1920.



THE LOJA VALLEY (ALT. 7,200 FT.) LOOKING EAST FROM THE PASS AT VILLANACO
October, 1920.



ZAMORA (ALT. 3,250 FT.)
(Junction of Tropical and Subtropical Zones.) November, 1920.



CHIMBORAZO FROM RIOBAMBA (ALT. 9,050 FT.)
(Arid Temperate Zone.) May, 1916.



QUITO VALLEY FROM PANECILLO (ALT. 9,500 FT.)
(Arid Temperate Zone.) Showing vegetation along irrigation ditches. May, 1916.



GUALLABAMBA CAÑON FROM THE POMASQUI
Looking down to subtropical elevations. Note the sugar-cane patch
on the lower shelf at the left.
(Arid Temperate Zone.) August, 1922.



YANACOA, NORTHWESTERN SLOPE OF PICHINCHA
Looking north to Mt. Cotacachi (alt. 11,000 ft.)
(Arid and humid Temperate Zone.) September, 1922.

125 miles east of Quito, lies in the Subtropical Zone, and the mountain (Sumaco) is said to have an altitude of over 12,000 feet.

Even in western Ecuador we lack exact information concerning the mountains arising from the coastal lowlands. I could find no one in Guayaquil who could supply me with a description of the Colonche range, distant only some 50 miles from that city.

Doubtless when the reports of prospectors for Ecuador's mineral resources are made available, this hiatus in our knowledge will be in part filled, but it will be many years before we shall have a detailed map showing accurately the topography of Ecuador. Meanwhile the zoögeographer must express his results, in large measure, diagrammatically.

DISTRIBUTION OF FORESTS

With the exception of the Paramo, the arid Temperate Zone, certain interandine valleys, and portions of the Equatorial Arid Fauna, all of Ecuador is, or was, forested. So far as our information goes, all of eastern Ecuador, from the upper limits of the humid Temperate Zone at timber-line (approximately 11,500 to 14,000 feet on Tunguragua according to Spruce) to the Tropical Zone of Amazonia is covered with luxuriant growth of trees.

While the Temperate Zone tableland is now largely devoted to agriculture or pasturage, it possesses too low a rainfall ever to have supported a forest growth. Deforestation has occurred chiefly on the transverse ranges or *nudos*, and particularly on the upper portions of the western slope, as, for example, about Nono, above Verdecocha, or near Lloa.

Interandine valleys which, like those of Chota, Guallabamba, Chanchan, Zaruma, or Catamayo, are deprived of rainfall by overshadowing mountains lying to the windward, or 'rainward,' show varying degrees of aridity and none possesses forests.

Except where such dry 'pockets' and clearings break the continuity of tree-growth, the western slope of the Andes, north at least of the Chanchan, is forested from timber-line to base. The cleared areas, as, for example, the plains of Pallatanga, are comparatively restricted in area and have exerted no appreciable influence on the fauna as a whole.

It is in the Pacific coast lowlands that we find some diversity in tree-growth. The humid Tropical Zone alone supports luxuriant forests. This, as shown in the faunal map, extends to the coast only north of Bahia de Caraques and for a small space at the foot of the Colonche Mountains. From Bahia de Caraques southward the humid tropical

forests are restricted to a constantly narrowing area lying between the Equatorial Arid Fauna and the base of the Andes.

There has been some deforestation in this humid tropical region, chiefly along the borders of streams, for the planting of cacao, bananas, and sugar-cane but, as elsewhere, the total amount of cleared land is too small to have had more than a local effect on the fauna. While portions of the Equatorial Arid Fauna of the lowland of southwestern Ecuador, for example, the Santa Elena region, are wholly devoid of arborescent growth, there are other areas which are densely tree-grown. The larger part of Puna Island is covered with 'dry' forest which, seen during or immediately after the rainy season, appears vividly green and luxuriant, but in the succeeding months of the prolonged dry season (May to January) many of the trees lose their leaves and the whole region becomes scorched and desiccated. Throughout the entire coast of Ecuador, without relation to rainfall, mangroves border the shores wherever they find protection from the waves of the sea, and extend up bays and their tributaries to the limits of salt water.

GENERAL CLIMATIC CONDITIONS

In a mountainous country situated on the Equator, seasonal changes are dependent largely upon rainfall, while temperature is governed by altitude. Ecuador, with a mountain range which, throughout the greater part of its extent, has peaks reaching snow-line, with one slope facing the Amazon basin, the other descending almost to the shores of the Pacific, is subjected in a marked degree to those influences which create climatic diversity.

The eastern slopes of the vast mountain system, which occupies so large a part of her territory, receive an exceptionally heavy rainfall from Atlantic-born winds, the western slope owes its generous precipitation to the Pacific, and to the differences in these sources of moisture may doubtless be attributed the fact that when the wet season prevails on one side of the Andes the dry season exists on the other.

Where overshadowing ranges intercept moisture-laden winds, lower areas lying to the leeward of them receive a comparatively low rainfall or even none at all. As before stated, the interandine tableland of Ecuador and a number of her intermontane valleys lie in such 'rain shadows.'

Climatic conditions, aside from those due to altitude, are doubtless more or less uniform throughout eastern Ecuador. In western Ecuador, however, both on the mountain slopes and lowlands, but more particu-

larly the latter, there are pronounced climatic differences. In the coastal region north of Bahia de Caraquez (or about S. Lat. $0^{\circ} 30'$) the rainfall is higher than it is south of this region, with the resulting effect on the flora to which attention has already been called.

Dr. Robert Cushman Murphy has called attention to the existence of a "meteorological frontier," as yet not fully defined, in the peninsula of Santa Elena (and including also the islands of Santa Clara and La Plata), to the eastward of which rain falls annually, while to the westward it falls "in appreciable quantity only at intervals of years".¹ This line evidently marks also the boundary between the Equatorial Arid Fauna and that portion of the Santa Elena peninsula from which have been recorded certain forms of the Peruvian coast elsewhere unknown in Ecuador.

Rainfall.—Ecuador possesses no weather bureau and but few exact data concerning her meteorology are available.

According to Wolf, the principal rainy season in lower lands of eastern Ecuador (eastern Tropical Zone, Amazonian Fauna) lasts from the end of February until the middle of June, with lighter rains from the middle of October to the beginning of January. At no time, however, is it really dry.

On the eastern slopes of the Andes, Villavicencio writes that the wet season lasts throughout the year, but that less rain falls from November to April than during the remaining months.

On the western slope of the Andes, the wet season extends from November to May, with more or less precipitation during the intervening months.

In the lowlands of western Ecuador, the wet season is shorter extending only from early January to the end of April, and, in southwestern Ecuador (Equatorial Arid Fauna), rain rarely falls during the dry season. Dr. Murphy has shown that in the region lying to the west of a line run approximately north from Tumbez, rain falls only at intervals of years. (See *Geographical Review* for January, 1926.)

The lower Andean slopes and outlying coastal ranges of this region are nightly bathed with heavy fog or mist known as *garúa*, the occurrence of which exercises a marked influence on both flora and fauna.

The high Andes enjoy the season of the slope from which they respectively arise. There is, consequently, more snow on the summits of the eastern Andes from May to November than during the intervening months, while, in the western Andes, the snow-line is at its lowest between December and May.

¹ Natural History, XXV, 1925, p. 445.

The interandine (Temperate Zone) tableland, because the mountain wall on its western side is lower than that on its eastern, has, in general, the seasons of western Ecuador, but Wolf states that no month in the year is wholly without rain.

It should be added that, in Ecuador, the dry season, although it is the cooler, is known as 'verano' (summer), while the term 'invierno' (winter) is applied to the warmer wet season.

The annual precipitation is known for but few places in Ecuador, and one can judge of the comparative amount of water which falls at a given locality only from the duration and severity of the wet season.

Temperature.—In default of adequate records of the temperature of the air, the method of Boussingault has been employed to determine the mean annual temperature of numerous localities in Ecuador.

As is well known, Boussingault discovered that in tropical regions, apparently without relation to altitude, the temperature of the earth, in a shaded situation, at a depth of 2 to 3 feet, closely approximates the mean annual temperature of the air at that locality. From observations of this

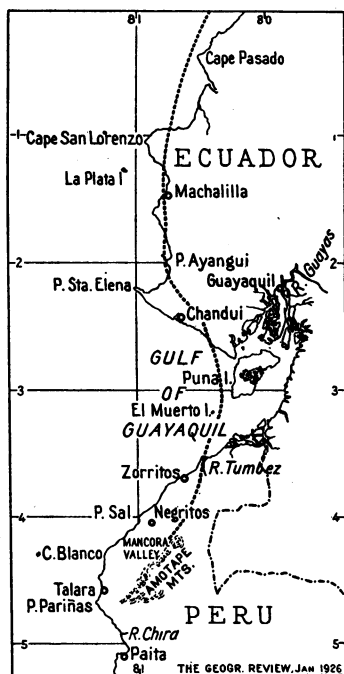


FIG. 3. The coasts of northern Peru and southern Ecuador. The heavy broken line divides regions having annual rains (to the east) from those having rains only at intervals of years (to the west). Scale 1:6,500,000. (Courtesy of the *Geographical Review*, Jan., 1926.)

nature made by Boussingault, Humboldt, Reiss, Stübel and others, I select the following from Wolf.

LOCALITY	ZONE	ALTITUDE	MEAN TEMPERATURE
Esmeraldas	Western Tropical	0	81.7
Guayaquil	Western Tropical	0	79
Florencio (road to Manaví)	Western Subtropical	4,750	62.8
Mindo	Western Subtropical	4,140	65
Jorge (Chimbo Valley)	Western Subtropical	3,400	65.5
Pallatanga	Western Subtropical	4,950	63.3
Guaranda	Western Subtropical	8,850	59
Chunchi	Western Subtropical	7,400	60.3
Loja	Western Subtropical	6,975	64.4



EAST SIDE OF LA PLATA ISLAND. MAINLAND IN DISTANCE
(Arid Tropical Zone.) February, 1925.



SANTA CLARA ISLAND (EL MUERTO)
Southern breeding limit of the Brown Pelican and Man-o'-War Bird on the Pacific Coast.
(Arid Tropical Zone.) July, 1922.

LOCALITY	ZONE	ALTITUDE	MEAN TEMPERATURE
Cuenca	Arid Temperate	8,400	58.3
Riobamba	Arid Temperate	9,050	56.6
Chuquipoquio	Arid Temperate	10,900	50.2
Ambato	Arid Temperate	8,540	59.5
Quito	Arid Temperate	9,350	55.7
Lloa	Humid Temperate	10,000	52.6
Calicali	Arid Temperate	9,100	53.9
Guaillabamba	Arid Subtropical	8,276	63.5
Papallacta	Arid Temperate	10,345	48.1
Paramos in general		11,700	47.3
Baños	Eastern Subtropical . . .	5,850	63.5
• Canelos	Eastern Tropical	3,200	68.7

Unfortunately, most of the stations above represented are in the high Andes, but there are several interesting departures from the normal, due, evidently, to local influences. Thus, Jorge, in the Chimbo Valley at an elevation of 3,400 feet, has approximately the mean temperature of Mindo, with an altitude of 4,140 feet. Again, Pallatanga, in a branch of the Chimbo Valley at 4,950 feet, has approximately the mean temperature of Baños, nearly 1,000 feet higher, but on the Atlantic instead of the Pacific slope. These data, therefore, are in keeping with the zoölogical evidence which at these points lowers zonal boundaries below the average.

*Influence of the Humboldt Current on the Climate of Western Ecuador.*¹

—The question why one-half of Ecuador's coastal region should be humid and forested, while the other is arid and treeless, can be answered only by a brief survey of the climatic conditions prevailing on the Pacific coast of South America.

It will be observed that humid conditions prevail continuously from Cape Pasado, in Ecuador, north to eastern Panama, and that, with the exception of a few short sections in Ecuador, the coast is arid from Cape Pasado southward to central Chile.

While the elevation of the Andes has, no doubt, profoundly affected the climate of the region to the west, as well as to the east of them, we cannot attribute such marked variations in rainfall as are found in western Ecuador to the presence of these mountains. It has, indeed, long been known that while the humid northern and southern ends of the western coast of South America are due to the existence of these areas of normal relations between the temperatures of the sea and land, the intervening 1,800 miles is a desert primarily because these relations

¹ Dr. Robert Cushman Murphy's 'Bird Islands of Peru' particularly pp. 157-181 on the Humboldt Current, should be read in this connection.

are not normal. Normally, the temperature of the ocean is higher than that of the adjoining land, and when the air over it is blown to the shore, if its temperature is lowered below its moisture-carrying capacity, condensation and precipitation follow. Hence, we have, in northwestern Ecuador, western Colombia, and southern Chile, a heavy rainfall and correspondingly luxuriant forest growth.

But from southern Chile to Cape Blanco, in northwestern Peru, the shore is washed by the comparatively cold waters of the Humboldt Current, and, except where drainage from Andean snow reaches the coast, it is largely devoid of vegetation. The temperature of this current off Callao, for example, is 15.5° C. (60° F.), while the mean temperature over the adjoining land is 23° C. (73° F.). In other words, the relation between sea and land temperatures is exactly the reverse of those which are found to the north as well as to the south. Thus, when the air over the water reaches the land, its temperature is raised, instead of being lowered, and its moisture-carrying capacity is increased. Therefore, in place of condensation we have absorption, and so long as these conditions exist rain cannot fall.

On the coast of Peru it is only during the months when the rays of the sun are least direct that the air over the land has a low enough temperature partly to condense the moisture in the air from the sea, with resulting heavy mists or drizzles known as *garúas*.

While the main body of the Humboldt Current leaves the coast of Cape Blanco, to exert on the climate of the Galapagos much the same influence it exerts in western Peru, Wolf shows that a narrow arm of it extends up the coast of Ecuador to Cape Pasado, and, consequently, to the northern limit of the arid, or compared with Peru, semi-arid area. This authority states that the temperature of this current off Ecuador is 23° C. (72.5° F.), while the mean annual temperature at Guayaquil is 27° C. (80.6° F.).

On the other hand, the temperature of the sea off Esmeraldas, in the humid region, is 28° C. (82.4° F.), higher, doubtless, therefore, than that of the contiguous land, though the latter is not given.

The higher temperature of the Ecuadorean arm of the Humboldt Current is due, no doubt, to proximity to the Equator, and smaller volume and this closer approach to the temperature of the air permits of a greater rainfall with a corresponding decrease in aridity.

Wolf, expressing his belief in the part played by the Humboldt Current, affirms without hesitation: "Extend the Antarctic Current with its low temperature to the Gulf of Panama and it would soon convert the coast of Ecuador and Colombia into a desert resembling

that of Peru; on the other hand, give the coast of Peru a tropical sea with normal temperature, and the aspect of the coast and western slope of the Cordillera would soon become covered with vigorous vegetation as a result of regular, solstitial rains" (p. 387).

LIFE-ZONES OF ECUADOR AND THEIR BIRD-LIFE

Our explorations in Colombia and subsequent study of the representative collections made at many stations have revealed the existence there of four well-defined zones of bird-life between sea-level and snow-line. Adopting for these zones a nomenclature which would be generally applicable and would also convey some conception of their climatic characteristics, their names and their altitudinal boundaries were given for Colombia as follows:

- Tropical Zone . . Sea-level to 4,500–6,000 feet.
- Subtropical Zone . 4,500– 6,000 feet to 9,000–9,500 feet.
- Temperate Zone . 9,000– 9,500 feet to 11,000–13,000 feet.
- Paramo Zone . . . 11,000–13,000 feet to snow-line (15,000 feet).

It has been most gratifying to observe that subsequently published works on the distribution of plants and of birds in Colombia, and of mammals in Panama, confirm the conclusions in regard to the zonal distribution of life reached from only a study of birds. In Part I of his '*Scrophulariaceæ of Colombia*,'¹ Francis W. Pennell adopts the "system of life-zones" and "terminology of each," and states that "in general outline, and in nearly all details" the scheme proposed in my Colombian work "may be adopted for plants as for animals."

The results obtained by Goldman in his independently made studies of the distribution of mammals in Panama, based on field-work begun only a month after we inaugurated our survey of Colombia, are, when due allowance is made for variation in local conditions, in accord with those obtained in Colombia. Goldman writes:² "The life-zones of tropical America, in their general bearings, have been discussed with Dr. Frank M. Chapman, of the American Museum of Natural History, whose special field of study is northwestern South America. Dr. Chapman's work is based on birds, and it is gratifying to find that, although working independently, we are substantially in accord regarding the

¹ Proc. Acad. Nat. Sci. Phila., 1920, p. 139.

² 'Mammals of Panama.' By Edward A. Goldman. Smithsonian Misc. Coll., Vol. 69, No. 5. Washington, 1920. 8vo. 309 pp.; 39 pls.

number, approximate boundaries, and appropriate nomenclature of the zones. The same general laws clearly apply to the areas studied by Dr. Chapman and myself" (p. 25, footnote).

More recently, Todd and Carriker, after nearly ten years' intensive study of the avifauna of the Santa Marta region of Colombia, write: "The general laws and principles laid down by Dr. Chapman in his recent work on 'The Distribution of Bird-Life in Colombia' (to which the present paper may be regarded as, in a sense, complementary) have been confirmed and amplified by this study."¹

It should be added that, since working in Colombia, I have made a reconnaissance in the Urubamba Valley of Peru, and in my report² on collections secured by the Yale University-National Geographic Society's Expeditions, I write: "In general it may be said that the Tropical, Subtropical, and Temperate Zones of the Urubamba district are essentially the Tropical, Subtropical, and Temperate Zones of Colombia; the same altitudinal boundaries and many of the same species being common to both regions. When, however, we compare the Paramo or Puna Zone of the two countries, the area occupied by this zone in Peru is so much larger and its distance from the region whence its fauna was presumably derived is so much shorter, that there is a marked difference in the character of its fauna as will be shown beyond" (p. 27).

In view, therefore, of these confirmations of our work in Colombia, we may approach a study of the distribution of bird-life in Ecuador with some assurance that the foundation already laid is sound

At the outset it may be said that, locally, zonal boundaries on the Pacific slope of the Ecuadorean Andes differ widely from those which have been found to exist in western Colombia. But far from disproving the views already advanced, this variation confirms the proposed principles concerning the relation between temperature and the limits of zonal boundaries and, furthermore, emphasizes the necessity of intensive, carefully conducted field-work in faunal investigations.

A consideration of the bird-life of each zone is prefaced by a general statement of the boundaries of the zones and of those factors which more closely affect the distribution of life. In this connection I welcome an opportunity to acknowledge my indebtedness to Dr. Theodore Wolf³

¹ 'The Birds of the Santa Marta Region: A Study in Altitudinal Distribution.' *Annals Carnegie Museum*, XIV, 1922, p. 4.

² 'The Distribution of Bird-Life in the Urubamba Valley of Peru.' A Report on the Birds Collected by the Yale University-National Geographic Society's Expeditions. *Bull. U. S. Nat. Mus.*, No. 117, 8vo. 138 pp.; 9 pls.

³ 'Geografía y Geología del Ecuador.' Por Teodoro Wolf. Leipzig, 1892. Royal 8vo. xii+671 pp.; numerous illustrations; 3 maps.

whose admirable work on Ecuador has proved an invaluable source of authoritative information on the geography, topography, climate, and distribution of vegetation in that country.

THE TROPICAL ZONE

- Boundaries, Characteristics, and Habitats
 - The Eastern Division
 - The Western Division
 - The Colombian-Pacific Fauna
 - The Equatorial Arid Fauna
 - Habitats of the Tropical Zone
- The Bird-Life of the Tropical Zone
 - The Humid Tropical Zone
 - Distribution of Genera
 - Distribution of Species
 - The Colombian-Pacific Fauna
 - Summary and Conclusions
- The Arid Tropical Zone
 - The Equatorial Arid Fauna
 - Distribution of Genera
 - Distribution of Species
 - Summary and Conclusions

THE TROPICAL ZONE

BOUNDARIES, CHARACTERISTICS, AND HABITATS

The Tropical Zone in Ecuador occupies the lowlands of the Pacific coast region on the west and of Amazonia on the east, with the contiguous mountain slopes up to an elevation of from 2,000 to 4,000 feet on the western, and approximately 5,000 feet on the eastern side of the Andes. The two divisions of the Zone are, therefore, separated by the larger part of Ecuador's orographic system.

While several of the rivers which rise on the interandine tableland reach the Tropical Zone through a break in the mountain wall at a comparatively low altitude, in no instance, as I have already stated, does the same interandine valley give rise to both eastward- and westward-flowing rivers. Thus, the Zamora, Paute, and Pastaza rivers rise respectively in the Temperate Zone valleys of Loja, Cuenca, and Rióbamba-Latacunga, and flow eastward, while the Catamayo, Tumbes,

Jubones, Cañar, Chanchan, Chimbo, Guallabamba, and Mira rivers rise respectively in the valleys of Catamayo, Zaruma, Jubones, Cañar, Alausi, Chimbo, Quito, and Ibarra, and flow westward. In nearly every instance the valleys possessing an Amazonian drainage are separated from those draining into the Pacific by *nudos* (knots) or transverse mountain ranges connecting the eastern and western summits of the Andes. North of Loja, these 'knots' are never below an altitude of 10,000 feet and usually are above 11,000 feet. The valley of Loja is separated from that of the Rio Catamayo by a short range running parallel to the main mountain system and having an altitude (at the pass of Villonaco) of not more than 9,400 feet.

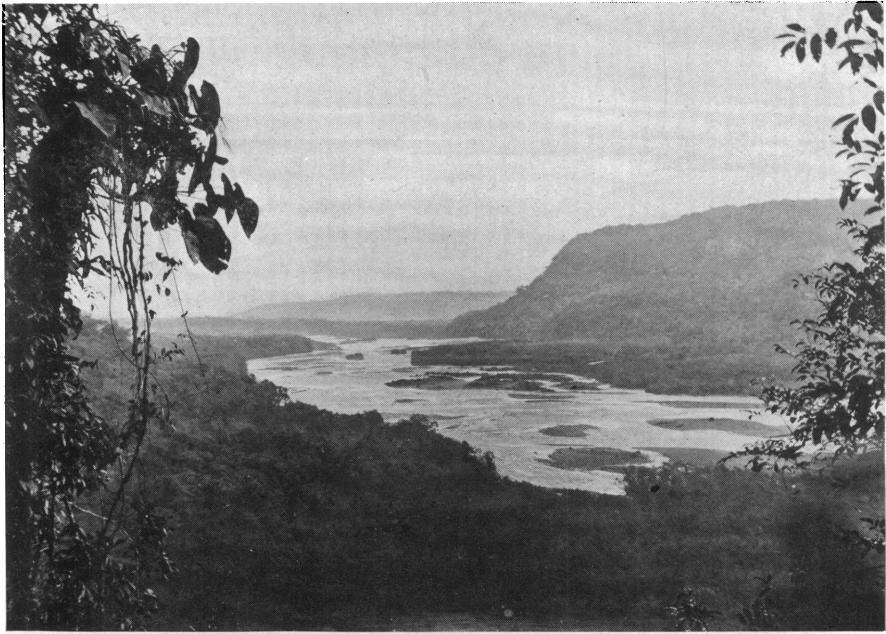
The divide between the headwaters of the Zamora and Catamayo is the lowest, therefore, between Amazonian and Pacific drainage in Ecuador. About 120 miles further south, however, at Porculla, the range between the coast of Peru and the Huancabamba River, a tributary of the Marañon, reaches an elevation of only 7,078 feet. This, so far as I am aware, is the lowest pass in the entire Andean system between Amazonian and Pacific drainage, except Andalucia, in the eastern Andes of Colombia, which has also an altitude of about 7,000 feet, but here the Andes are three ranges wide.

The collections of Noble¹ and of our own expedition under Watkins indicate that a number of Amazonian species have reached the Pacific coast near this point. This connection, however, which will be discussed more fully later, affects only the arid region of western Ecuador. Between the eastern and western divisions of the humid Tropical Zone there is no connection in Ecuador.

The Eastern Division of the Tropical Zone.—Such information as we have concerning tropical eastern Ecuador leads us to picture it as a region of heavy rainfall covered with luxuriant forests. Villavicencio writes of the Napo region (Geogr. del Ecuador, p. 347), "the plains of this country are as humid as the Cordillera, and it may be asserted that the rainy season lasts during the entire year. Nevertheless, from November until April the sky is more clear and the rains are less frequent."

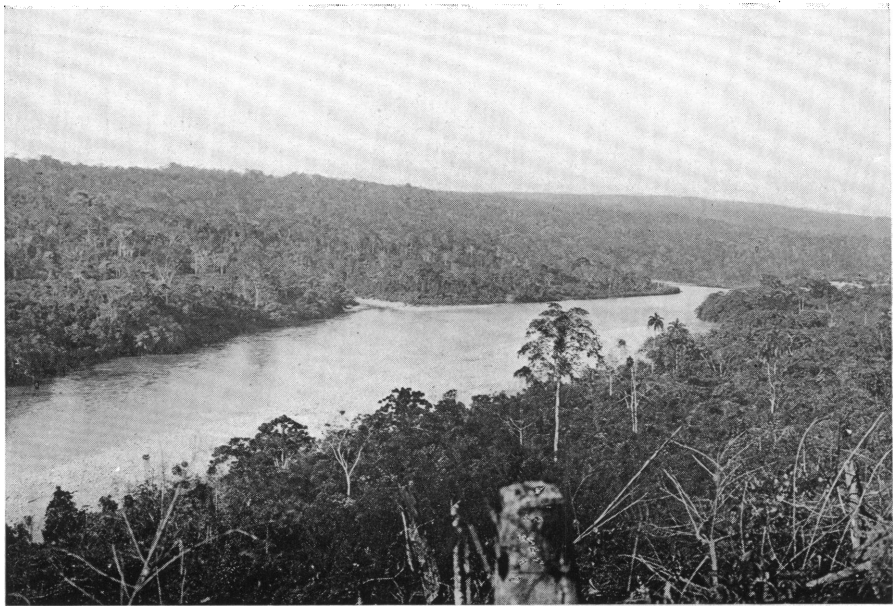
Faunally, tropical eastern Ecuador belongs in the vast region which is somewhat indefinitely referred to as Amazonia and includes the entire Amazonian basin. The area here under consideration forms, however, too small a part of this region to warrant a discussion of its faunal characteristics, except as they affect other parts of Ecuador, a subject which is considered later.

¹ Bangs and Noble, 'The Auk,' 1918, pp. 442-463.



LOOKING EAST DOWN THE PASTAZA RIVER AT MERA

The river here emerges from the great cañon cut in the eastern Andes
and flows onto the Amazon Plain (alt. 3,808 ft.)
(Humid Tropical Zone.) August, 1921.



LOOKING DOWN THE RIO NAPO FROM THE LOW HILL ON RIGHT BANK OPPOSITE NAPO
(Humid Tropical Zone.) October, 1921.

One of the most authentic and satisfactory reports on explorations in eastern Ecuador is that of Sinclair and Wasson¹ who, in the latter half of 1921, made a geological reconnaissance from Baños to somewhat north of Archidona, east to the mouth of the Rio Coca and south to Macas. At my request Mr. Sinclair has kindly furnished me with the following general description of this region:

"The line of demarcation between the Andes and the eastern lowlands seems, in general, to occur at an elevation of 4,000 feet above the sea. This contour should be taken as the western boundary of the 'Oriente.'

"From this base of the Andes, the Amazon 'lowland,' so-called in contradistinction to the lofty elevations of the Andes, slopes gently eastward until, about 80 miles from the Andean wall, we find ourselves at an elevation of only 850 feet above the sea, though still 3,000 miles from it, without an intervening rapid between us and the Atlantic.

"This plain or lowland, sloping eastward from 4,000 feet above the sea, extends all along the eastern base of the Andes in Ecuador. As a physiogeographical unit, this eastern sloping region would in reality be called semi-mountainous were it situated away from the great Andes, for river valleys are often as deep as 1,000 feet below the surface, and the repeated alternation of deep valleys, even though the interstream areas are fairly flat, certainly does not fit in with the term lowland or plain.

"Thus, we have as the most general features of eastern Ecuador a heavily forested, foothill country, with maximum relief of 1,000 feet, and whose upper surface slopes from about 4,000 feet to about 1,000 feet above the sea.

"The streams cross this belt in an west-east direction; collecting at the base of the Andes they are of clear water from the glaciers at their sources, and their courses are torrential, full of rapids, in beds of gravel, till the 'fall-line' is reached (in the case of the Rio Napó, 80 miles east of the Andes at 850 feet above the sea), where all rapids cease and the rivers become muddy, deep, sluggish streams of mud banks, navigable for small steamers to the Atlantic.

"The 'Oriente' is almost uninhabited, for Indians have their isolated dwellings far apart and the few villages of white pioneers are small and widely separated. The muddy Indian trail through the forest has been, for centuries, the only means of communication between the 'Oriente' and the highland. No telephone or telegraph line penetrates its savage stillness.

¹*Geographical Review*, XIII, 1923, pp. 190-210, map and half-tones.

"And, yet, although the rains are frequent and heavy, the 'Oriente' has a pleasant temperature and the mosquito does not molest above the 'fall-line' of the rivers."

The Western Division of the Tropical Zone.—The Tropical Zone of western Ecuador is divisible into a humid, and an arid section. The first constitutes the southern part of the Colombian-Pacific Fauna;¹ the second, includes the Ecuadorean part of the Equatorial Arid Fauna.¹

The Colombian-Pacific Fauna.—As stated in the work on Colombian birds just referred to, the Colombian-Pacific Fauna "occupies the entire humid Pacific coast region of tropical South America." This includes eastern Panama, south of the mountains facing the Caribbean and west to the Tuyra River region, the entire coast of Colombia and in Ecuador south on the coast to the north side of the Bahia de Caraquez, thence southeastward in an increasingly narrow band to the Peruvian boundary.

The Sierra de Colonche, according to Wolf, attains an altitude of 2,500 feet, a sufficient height to produce condensation with resulting luxuriant vegetation, and an arm of the humid zone is found on the slopes and at the windward base of this range. Southeastward, the altitude decreases to 600 to 700 feet in the Chongon Hills and, as described beyond, the humid element is correspondingly diminished.

South of Bucay, a strip of the humid zone is found at the base and on the lower slopes of the mountains to somewhat south of Pullango on the Rio Tumbez.

Whereas in western Colombia this faunal division of the Tropical Zone ascends the mountain slope to an altitude of from 4,500 to 5,000 feet, in western Ecuador its upper altitudinal limits are much lower, particularly in its more southern portion where locally they do not exceed an elevation of 2,000 feet.

Stolzmann (P. Z. S., 1885, pp. 67-70), in commenting on this fact, writes: "The limits of orographic distribution are much lower for several species on the western slope than on the eastern slope, which seems to prove that the same isothermal lines are not located at the same level on the two sides of the Andes in the same latitude. Data from the vegetable kingdom confirm our supposition; for example, the spiny bamboo (*Guadua* sp.) is not found above Chimbo, 800 feet, whereas it is widespread at Machay and at Mapoto, from 4,000 to 5,000 feet. On the other hand, one meets at Chimbo with a climbing cane (*Chusquea*), present on the eastern side at elevations of from 7,000 to 9,000 feet, yet not found at Machay (5,000 ft.).

¹ See Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 106.

"Although the exploration at Baños [eastern slope] was very superficial, the presence of certain species, very characteristic for this locality, proves that it corresponds, more or less, to Cayandedo on the western side, although there is a difference of 2,200 feet in elevation [Baños being the higher]."

These variations in the altitudinal limits of zonal boundaries are occasioned by the influence on the land temperature of the cold waters of the Humboldt Current. To the same cause may be attributed the existence, in western Ecuador, of the semi-arid region for which I have proposed the name Equatorial Arid Fauna, and its action will be discussed in outlining the limits and characteristics of that life-area.

Wolf states that almost all the humid Tropical Zone of western Ecuador, with the exception of the small part under cultivation, is covered with forests. Natural savannas are very infrequent and marshes and ponds are still less numerous. The rains begin earlier and continue longer than in the arid coastal region, and during the dry months frequent mists and abundant dews replace in large part the daily evaporation. The trees retain their leaves and the forests are always green and densely foliated.

This is the home of the cacao, royal palm, ivory nut, vanilla, guarumo, and palo de balso. The names of these few trees, Wolf writes, indicate to any Ecuadorean familiar with the vegetation of his country, what is meant by the humid littoral region.

The Equatorial Arid Fauna.—The semi-arid portion of the Tropical Zone of western Ecuador, for which I have proposed the name Equatorial Arid Fauna,¹ is a transition area connecting the luxuriant forests of northwestern Ecuador and western Colombia with the deserts of Peru. In other words, it leads from a region in which the annual rainfall may reach 400 inches² to one in which there may be none at all.

Excepting for short sections (*e. g.* Manglar Alto west of the Sierra Colonche) it occupies the coast from Cape Pasado south to Tumbez, but these points are by no means its northern and southern limits. Northward, in an evidently narrow, and perhaps not continuous, strip, it sends an arm at least to Esmeraldas. Southward, it leaves the coast at Tumbez; just as the humid division retreats inland at Bahia de Caraquez, to continue southward in the valley of the Chira. Where rivers reach the sea and produce a semi-arid growth, a pronounced Equatorial Arid element is evident at least as far south as Pacasmayo whence we have such characteristic species as *Thamnophilus bernardi*

¹ Dist. Bird-Life in Colombia, p. 106.

² Loc. cit. p. 83.

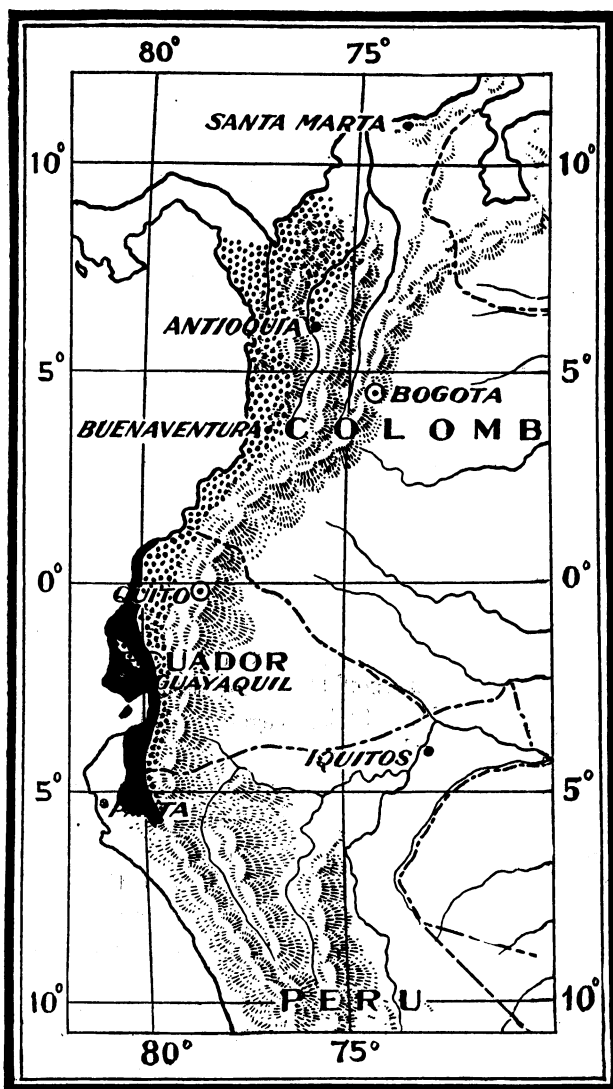


FIG. 4. Dotted area, Colombian-Pacific Fauna. Black area, Equatorial Arid Fauna

cajamarca, *Melanopareia elegans paucalensis*, and *Synallaxis stictothorax maculata*. Forms of undoubted northern origin like *Melopelia meloda* and *Sporophila telasco* are found indeed as far south as Chile, and it may even be desirable to let them mark the southern limit of our fauna. But, in this event, we should have an overlapping of the Tropical and South Temperate Zones along the entire length of the Peruvian coast,

for in the wholly arid areas lying between the semi-arid river-mouths occur such typically South Temperate forms as *Geositta* (which we have taken at Talara). A full treatment of the confusing faunal affinities of the coast of Peru, where Penguins and Vermilion Flycatchers may be seen at the same moment, is, however, beyond the scope of this paper.

To the eastward, in Ecuador, the Equatorial Arid Fauna is bounded by the Colombian-Pacific Fauna. At the north this occupies almost the entire lowland region, but from Bahia de Caraquez southward the arid region increases and the humid region decreases in width. In the section from Santa Elena through Guayaquil to Bucay, for example, the arid region reaches to Naranjito, leaving only a band some 35 miles wide, now only in part, but formerly doubtless all covered with humid lowland tropical forest.

The Chongon Hills, extending from near Guayaquil northwestward to the Colonche range, introduce a humid tropical element into the arid region. In spite of their low altitude of 600 to 700 feet, they evidently induce rainfall or intercept 'garúa' and in the drainage basins at their foot, as well as along the streams flowing down their sides, the growth is fairly luxuriant, and a limited number of humid tropical forms are found in these places. But the ridges between stream-beds are arid in character with ceibas as the only large trees. Within a circle not over 200 feet in diameter, I counted a dozen of these trees with trunks averaging from 15 to 20 feet in circumference for the first 20 feet from the ground. As this range approaches the coast, its altitude increases, the rainfall is greater, and the forest-growth more extensive.

South of Guayaquil, particularly during or soon after the rainy season, the shores, seen from a steamer, look heavily forested, but when they are approached this growth is found to be composed of mangroves followed by other water-loving trees, and these, in turn, as the land becomes higher, by a zone of semi-arid growth which extends to the humid strip at the base of the mountain. This humid strip, as we have seen, ends soon after crossing the Rio Tumbez, or Rio Pullango, as it is called near the Andes, but the Equatorial Arid Fauna extends south-eastward into Peru between the coastal deserts and the Andes, and also sends two arms into the interior of southwestern Ecuador. One of these stretches up the Tumbez into the valley east of Zaruma; the other up the Catamayo to the valley lying between the range west of Loja and east of Punta Santa Ana, and penetrates also the Casanga Valley.

The interandine basins of this part of Ecuador, therefore, are faunally arid tropical rather than arid temperate, as they are from this latitude northward.

The fundamental characteristic of the Equatorial Arid Fauna is a comparatively low rainfall which occurs during a short wet season (January or February to March or April), while the correspondingly long dry season is practically without rain. As a result of this lack of moisture, most of the trees lose their foliage during the dry period, and there is consequently a marked environmental variation between the winter and summer months which is said to exercise a pronounced influence on the seasonal distribution of birds.

The banks of the numerous rivers, which reach the coast through the arid region, are more or less forested, and these narrow, wooded strips induce birds of the humid fauna to penetrate the more arid area, particularly during the wet season.

The savannas, with their Ceibas, Eriodendrums, Erythras, and scattered groups of trees of various species, are far from arid in appearance, and it is not until one approaches the coast that a degree of aridity approximating that of northern Peru is observed. Here algarobas, mimosas, and cacti are characteristic forms of vegetation. At Santa Elena, even these are wanting and only bushes grow from the bare sand.¹

In response to local conditions which inhibit forest-growth, such characteristic species of the Equatorial Arid Fauna as *Eupelia cruziana*, *Veniliornis callonotus*, *Pyrocephalus rubinus*, and *Sporophila telasco* occur as far up the coast at least as Esmeraldas. To this fauna also belong certain isolated, arid valleys in the Andes, like the valley of the Guallabamba, the altitude of which falls within the limits of the Subtropical Zone. These dry, hot, 'pockets' have a limited avifauna of which *Hylocharis grayi* and *Pyrocephalus rubinus* are characteristic species, but they seem to have produced no forms of their own.

The short, wet, prolonged dry season, to which reference has already been made, produces not only marked changes in the appearance of the vegetation, but also creates a migrational movement among the birds of the region affected. Species which are present during the period of rains and inflorescence are said to be absent when the trees are largely leafless.

Our own work in the arid region has, unfortunately, not been conducted with sufficient continuity to give us original data in regard to this exceptionally interesting phenomenon, but that observing collector, Stolzmann, gives us some valuable observations from Yaguachi, a locality near the line between arid and humid sections of the Tropical Zone. He writes:

¹ See 'Some Essential Features of the Geography of the Santa Elena Peninsula, Ecuador.' By Mels A. Bengston, Ann. Assoc. Am. Geographers, XIV, 1924, pp. 150-158.

"Its elevation is practically zero and the climate very hot. The vegetation of the neighborhood of Yaguachi offers a remarkable transition from the humid forest of the foothills of the Andes to the relatively poor vegetation of the vicinity of Guayaquil. In the two seasons of the year, rainy and dry, a rather considerable difference is noticeable in the vegetation, which is poor during the drought but is much better developed when the rains commence. These climatic and phytologic changes bring about a sort of migration of birds of the Ecuadorian coast, so that whereas one finds there in the dry season several species characteristic for Guayaquil, one meets in the rainy season several forms typical of the humid forests of the vicinity of Chimbo. For example, I have found there, in December (the end of the dry season) *Pyrocephalus rubineus*, *Myiodynastes bairdi*, *Coryphospingus cruentus*, etc., in rather large numbers, whereas they were completely lacking in the month of May, the end of the rainy season; and in their place I found the species not previously seen, *Myiodynastes audax*, *Euphonia saturata*, *Hadrostomus homochrous*, *Pachyramphus spodiurus*, *Juliamyia felici*, etc." (P. Z. S., 1885, p. 70.)

HABITATS OF THE TROPICAL ZONE

The Tropical Zone in Ecuador includes the forests, the seashores, as well as the strongly characterized Equatorial Arid Fauna, and it therefore possesses a greater variety of country and consequently a larger number of habitats than any of the remaining zones.

Within its limits the following habitats are found: (1) Maritime; (2) Littoral; (3) Mangrove; (4) Palustrine; (5) Lacustrine; (6) Fluvial; (7) Savanna; (8) Dry Forest; (9) Wet Forest.

In the first, or Maritime group, belong the Procellariidæ, Sulidæ, Fregatidæ, Pelecanidæ, and most of the Gulls and Terns. The second group contains the beach-haunting Snipes, Plovers, and the Oystercatcher. The third, has only *Rallus longirostris cypereti*, *Aramides axillaris*, *Dendroica æquinoctialis*, and *Megaquiscalus assimilis*. The fourth, or Palustrine group, includes most of the Rails, Gallinules, Stilts, Jacanas, Courlans, Herons, Ibises, Kites (*Rostrhamus*).

There are no large fresh-water lakes in the Tropical Zone of Ecuador, and the members of the fifth or Lacustrine group are correspondingly limited in number. During the rainy season, marshes are overflowed and temporary lakes are formed which either disappear or shrink to small ponds in the dry season, the home of Ducks, the small Grebe (*Colymbus dominicus*) and the Finfoot (*Heliornis*).

The Fluvatile group (6) is composed of a small number of birds that haunt the shores of wooded streams and lagoons or forest ponds rather than their waters. They are the Rails (*Aramides* and *Neocrex*), Sun Bittern (*Eurypyga*), Tiger Bittern (*Tigrisoma*), Anhinga, Crab Hawks (*Urubitinga*), Kingfishers, Pied Flycatcher (*Fluvicola*), and River Flycatcher (*Serpophaga*).

The birds of the Savanna group (7) include widely distributed inhabitants of both natural and artificial grassy places, such as the seed-eaters (*Sporophila* and *Volatinia*), as well as those of the wholly natural savannas of the Equatorial Arid Fauna, like *Eupelia buckleyi*, *Muscigralla*, *Neorhynchus*, *Sicalis*, *Rhynchospiza*, and *Trupialis*.

The birds of the Dry Forest group (8) include species of the Arid Tropical Zone like *Ortalis erythroptera*, *Leptotila verreauxi decolor*, *Glaucidium*, *Hylocharis grayi*, *Tapera nævia*, *Taraba*, *Thamnophilus*, and *Synallaxis* (several species), *Pyrocephalus*, *Heleodytes zonatus brevirostris*, *Saltator maximus*, *Arremonops chrysoma*, *Thraupis caelestis*, *T. cana*, *T. violilavata*, *Ramphocelus icteronotus*, *R. carbo unicolor*, and Orioles of the genus *Icterus*. With this group should also be placed the following forest or scrub-inhabiting species of the Arid Equatorial Fauna: *Crypturus transfasciatus*, *Psittacula caelestis*, *Brotogetis pyrrhopterus*, *Myrmia micrura*, *Veniliornis callonotus*, *Picumnus sclateri*, *P. parvistriatus*, *Thamnophilus zarumæ*, *T. bernardi*, *Furnarius cinnamomeus* (almost a savanna bird), *Synallaxis stictothorax*, *S. tithys*, *Melanopareia*, *Phæomyias*, *Myiopagis cinereifrons*, *Myiodynastes bairdi*, *Tyrannus niveigularis*, *Thryophilus supercilialis*, *Arremon abeillei*, and *Cyanocorax mystacalis*.

There remains the Wet Forest group of birds (9), containing by far the greater part of the land-birds of the Tropical Zone. Here belong the Wood Quail, most of the Tinamous and Guans, many Pigeons, Macaws, Parrots, Motmots, Trogons, Toucans, Cotingas, Manakins, Wrens, Thrushes, Vireos, Warblers, Finches, Tanagers, Honey Creepers, and Icterids.

Doubtless, the range of some of these birds is determined by the extent of the inundations incident to the rainy season. This, however, is a subject on which we have no original information.

THE BIRD-LIFE OF THE TROPICAL ZONE

ITS DISTRIBUTIONAL RELATIONSHIPS

Having outlined the approximate limits of the Tropical Zone in Ecuador, as well as those of its subdivisions, and stated its principal characteristics, we are now prepared to discuss the interrelations and

geographic origin of its bird-life. At once we ask, how has the distribution of birds been affected by the elevation of the Andes and what are the relations of the widely separated Amazonian and Pacific divisions of the Tropical Zone?

As the segregated area, and hence the one to be most influenced by the Andean uplift, our inquiry centers chiefly in the bird-life of western, rather than in that of eastern Ecuador.

In writing of that portion of the Amazonian fauna which enters southeastern Colombia, I said:¹ "We stand now, as it were, on the shores of a great ocean of life which stretches far beyond the boundaries of Colombia. No adequate analysis of its affinities can be based on the study of a restricted part of it. The problem is as wide as the combined Amazonian and Orinocan basins." Exactly the same remarks apply to the Ecuadorean portion of Amazonia, and in dealing here with this fragment of one of the largest and most uniform life-areas in the world, we are concerned chiefly with its relations to that portion of it which lies in western Ecuador. This, as we have seen, is contained in the humid division of the western Tropical Zone. The life of the arid division of this zone in western Ecuador, being far more distinct from that of the adjoining western humid division than the latter is from the far-removed eastern humid division, demands separate consideration. We may turn our attention first, therefore, to the birds of the humid Tropical Zone. As stated above, it is the Pacific, rather than the Amazonian division of the humid Tropical Zone in which our problem lies. This, in Ecuador, constitutes the southern part of the Colombian-Pacific Fauna. Later we may consider this fauna as a whole, but the Ecuadorean section of it is far enough removed from the source of much of its life and has sufficient characteristics of its own to warrant separate treatment.

To our original query concerning the influence of the Andean uplift on Ecuadorean life, we add, is the bird-life of humid western Ecuador pre- or post-Andean, or both? If post-Andean in whole or in part, whence has it been derived? What are the Amazonian elements? What are the Central American elements? Which are the stronger? Which are the older? What are the endemic elements?

Before attempting to answer these questions as they apply to Ecuador, we must take a broader and more general survey of the problem from which they arise. In my work on the distribution of Colombian birds I gave (p. 117) a list of identical or representative species whose

¹ *Dist. Bird-Life in Colombia*, p. 133.

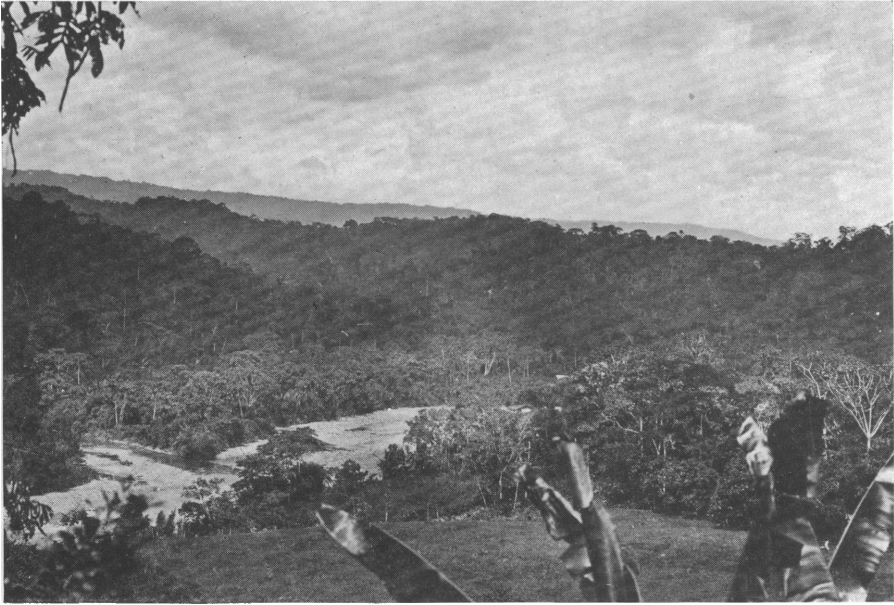
ranges are separated by the Andes. On further consideration it seems apparent that this list must be widely extended. Indeed, I am unable to find any close physical connection between the two sections of the humid Tropical Zone lying on opposite sides of the Andes. If this be true, it follows that the ranges of all the identical and representative humid species common to this and the other side of the Andes are disconnected, and this surprising condition appears to have been produced by the elevation of these mountains. Let us see whether the known facts in the case support the assumption that the two sections of the humid Tropical Zone lying on opposite sides of the Andes are actually disconnected.

In Ecuador it is clear that these two divisions are completely separated. In Colombia I know of but one place where they might meet. This is in the eastern Andes through the Andalucia Pass, near the head of the Magdalena Valley. Here the Andes have an elevation of only 7,000 feet, and it is conceivable that the Tropical Zone areas at the eastern and western base of the range may have been only recently separated by an elevation which has brought the divide some 2,000 feet above tropical altitudes. The humid Tropical Zone of Amazonia is highly developed at the eastern foot of the range, but at the western foot lies the arid portion of the Cauca-Magdalena Fauna, which extends northward for 150 miles before it reaches the humid portion of this zone near La Dorada. In Colombia, therefore, as well as in Ecuador, there is now no direct connection between the western and eastern divisions of the humid Tropical Zone. Nevertheless, it is conceivable that there may be or may have been a post-Andean or sub-post-Andean leak of Amazonian species over the Andalucia Pass. Indeed, we have found evidence of such intrusion in the presence at the head of the Magdalena Valley of *Piaya cayana mesura*, *Conopophaga castaneiceps*, *Myiotriccus ornatus phaenicurus*, and *Tangara chilensis*.¹

It is therefore evident that, because of the comparative lowness and narrowness of the eastern Andes in Colombia, the cisandine part of that country was open to direct invasion from Amazonia long after western Ecuador was closed to it. In this fact we may have an explanation of the presence of many Amazonian species in western Colombia which are wanting in western Ecuador.

Continuing our search for a connection between cisandine and Amazonian forests, it is probable that either around or over the northern end of the eastern Andes the forests of the Cauca-Magdalena Fauna

¹ Dist. Bird-Life in Colombia, p. 123.



CANELOS

From residence of Dominican Mission, looking west across Rio
Bobonaza to highland over 3,000 feet in altitude.
(Tropical Zone.) November, 1921.



LOOKING UP THE RIO UPANO FROM MACAS (AVERAGE ELEVATION 3,800 FT.)
(Humid Tropical Zone.) November, 1921.

are connected with those of the southern half of the Maracaibo basin. If this Colombian connection exists it is the only one possessed by the Maracaibo forests. To the south they are enclosed by the Meridan Andes and to the north and east by arid or semi-arid areas. Here, then, is a complete break, but even should there be a low pass over the Meridan Andes through the province of Táchira we should find that the narrow band of humid forests at the southern base of the mountains is separated from the nearest Amazonian forests by llanos over 300 miles in width. It appears, therefore, that the isolation from Amazonia, which is so pronounced in the humid Tropical Zone of western Ecuador, is also effective in Colombia and Venezuela.

It seems certain that the Andes have profoundly affected the climatic conditions, and particularly rainfall, of the area in which they have appeared. What conditions prevailed in western Colombia and western Ecuador prior to the Andean uplift, I do not know, but it seems clear that they have been altered by that phenomenon. This is particularly true of that portion of Colombia lying west of the western Andes and forming the greater part of the Colombian-Pacific Fauna. The exceptionally heavy rainfall of this region is evidently due to the interception by the western Andes of moisture-laden winds from the Pacific. The existing climatic conditions are clearly, therefore, in part attributable to post-Andean influences.

In the study of the bird-life of the Equatorial Arid Fauna given later, evidence is presented which indicates that forms like *Melopelia* and *Dives*, common to this fauna and to Central America, doubtless once had a continuous range which has been broken by the elevation of the Andes and consequent replacement of an arid by a humid region.

If this be true, it might follow that the Amazonian forms now occupying this area reached it around the northern end of the Central Andes and before the eastern Andes of Colombia had attained sufficient height to prevent further invasion of tropical species.

Without extending our inquiry in this field of past climates, we may emphasize the existing climate of western Colombia, for it is worthy of especial note that the comparatively narrow strip occupied here by the Colombian-Pacific Fauna forms the only existing connection between the humid Tropical Zone of western Ecuador and that of western Colombia. We will later examine the bird-life of this fauna; meanwhile it is interesting to observe that, omitting this region as essentially northwestern Ecuadorean in its faunal affinities, we make the somewhat surprising discovery that the area occupied by the humid Tropical Zone in western Colombia is not materially larger than it is in western

Ecuador.¹ Nevertheless, as we shall see, western Colombia has a larger number of east Andean species than western Ecuador. It should also be remembered that no small part of tropical western Ecuador is composed of post-Andean alluvial plains.

Following the elevation of the Andean barrier, western Ecuador has been segregated from Amazonia, but it has been open to invasion from Central America. To determine the extent of this invasion is an important part of our investigation. We may proceed, then, to a distributional analysis of the bird-life of the areas under consideration and an attempt to interpret its results. We will treat first of genera as expressions of influences of long standing, and then take up species and races in whose characters and relationships we may expect to find the results of the more recent changes in the environment.

BIRD-LIFE OF THE HUMID TROPICAL ZONE

Distribution of Genera.—Excluding marine, littoral, and migratory species, 406 genera of birds are herein recorded from the humid Tropical Zone in Ecuador. Of these no less than 374, or 92 per cent, are accredited to eastern Ecuador, and 289, or 70 per cent to western Ecuador. The large proportion of the whole found west of the Andes shows how strongly the Amazonian element predominates even when we include in the total Central American genera found in western but not in eastern Ecuador.

Most of the 289 genera of western Ecuador are found in Central America as well as east of the Andes, but it is not always possible for us to determine whether they originated in Central or in South America, and, hence, whether they reached western Ecuador from the first-named region or from Amazonia.

In view, however, of the apparently limited area in cisandine tropical Ecuador in the pre-Andean period, it is not improbable that while pre-Andean in Colombia and northwestern Ecuador, they have extended their range southward in Ecuador in the early post-Andean period. This theory would help to explain why the ranges of 50-odd Colombian-Pacific species terminate in northwestern Ecuador.

From eastern, but not from western Ecuador, I record 80 genera, while from western but not from eastern Ecuador 32 genera. This comparison will have greater significance if we widen its scope. Thus, from Colombia and Ecuador, east of the Andes, I record 55 genera unknown

¹ I exclude the Santa Marta region here and elsewhere when speaking of Colombia, the researches of Todd and Carriker showing it to have a faunally different history.

from west of the Andes, and, from west of the Andes, 16 genera unknown from east of the Andes. The difference of 25 between the 80 genera of our first statement and 55 of the second is, I believe, of much importance, for these 25 genera are found in Colombia west of the Andes but not in Ecuador west of the Andes. These figures show how much more pronounced the Amazonian element is in Colombia west of the Andes than in Ecuador west of the Andes, a fact before mentioned.

Among these 25 genera are a number which range northward into Central America, and in view of the close post-Andean connection between that region and western Ecuador, it seems apparent that these genera are of Amazonian rather than Central American origin, since if they had extended their range from the north southward it is more than probable that they would have reached western Ecuador as well as western Colombia. It is to this group I have referred in speaking of the comparative lowness and narrowness of the eastern Andes of Colombia.

Examples are *Selenidera*, *Jacamerops*, *Monasa*, *Rhopoterpe*, *Deconychura*, *Donacobius*, *Ostinops*, and *Gymnomystax*. The two latter are particularly interesting members of this class, their Amazonian origin apparently being confirmed by the presence east, and entire absence west, of the Andes of the allied Icterine genera *Clypeicterus*, *Ocyalus*, and *Gymnomystax*. Nevertheless, *Zarhynchus* of this group, representing *Ocyalus* of Amazonia, ranges from northwestern Ecuador to Mexico and is unknown east of the Andes, evidence, perhaps, of its pre-Andean occurrence in western Ecuador.

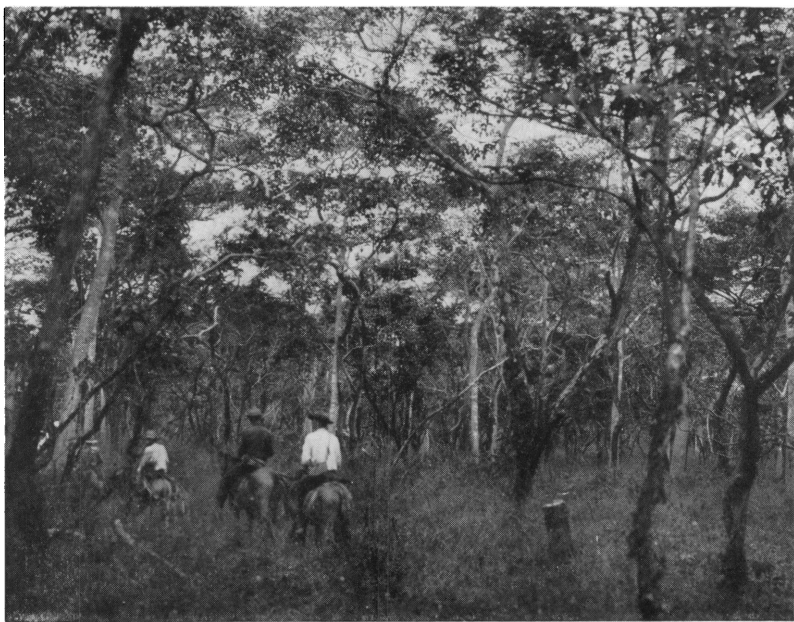
Among the 50-odd genera of eastern Ecuador which are unknown west of the Andes are *Nothocrax*, *Mitu*, *Psophia*, *Opisthocomus*, *Chelidoptera*, and other forms far too distinct to warrant the belief that they have been evolved since the Andean uplift, and whose occurrence at the eastern foot of the Andes may possibly be due to post-Andean range extension. This may well have been induced by the elevation of the Andes which, doubtless, increased the rainfall and hence the forested area in upper Amazonia. Or, if as suggested above, the Amazonian forms of the Pacific slope reached that region after the elevation of the Andes of Ecuador and Central and western Andes of Colombia, then it is possible that a subsequent elevation of the eastern Andes of Colombia may have prevented these 50-odd genera from entering western Colombia.

It is, however, a more detailed analysis of the affinities of the 16 genera of western Ecuador which are not found east of the Andes that yields the most significant results in regard to the ornithofauna, not only of humid western Ecuador, but of the Colombian-Pacific Fauna.

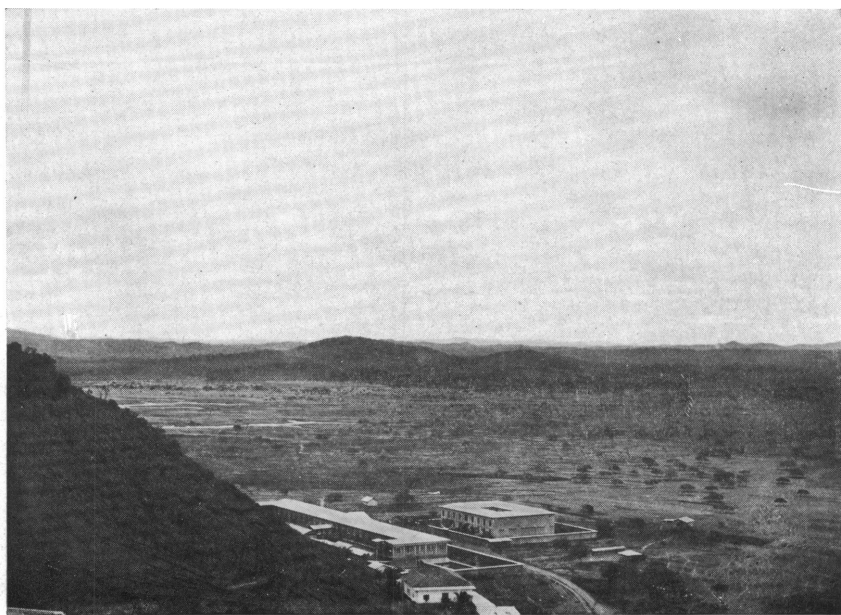


FIG. 5. Range of *Ostinops decumanus*, an abundant Amazonian species which, apparently, has entered Colombia from the east and extended its range to western Panama, but is unknown in western Ecuador. To illustrate the group of birds which appear to have entered Colombia from the east after the elevation of the Andes had closed western Ecuador to Amazonian species.

Dotted area, western portion of trans-Andean range. Black area, cisandine range.



EN ROUTE FROM CHONGONCITO TO THE CHONGON HILLS
(Equatorial Arid Fauna.) July, 1922.



THE SAVANNA OF GUAYAQUIL
Looking northward toward the Chongon Hills.
(Equatorial Arid Fauna.) July, 1922.

Of these 16 genera, 12 are also found in Central America, only 4 are restricted to western Ecuador and western Colombia—that is, the Colombian-Pacific Fauna—and *none* is restricted to western Ecuador.

A comparison of the large number of species and races of birds which are confined to the Colombian-Pacific Fauna (see beyond) with the almost total absence of endemic genera warrants, I think, the conclusion that these peculiar forms are of comparatively recent origin and that their differentiation may be attributed to the elevation of the Andes as it has, in part, segregated their range, and, through climatic change, affected the nature of their environment. Before proceeding to a consideration of the evidence presented by the distribution of species, I present a tabular statement of the data resulting from a distributional analysis of genera.

*Comparative Distributional Analysis of the Genera of the
Humid Tropical Zone of Ecuador*

(Exclusive of marine, littoral, and migratory forms)

Total number	405
Eastern	374
Western	289
Per cent of eastern of total	.92
Per cent of western of total	.71
Recorded from eastern but not from western Ecuador	80
Per cent of total	.20
Per cent of eastern	.22
Recorded from western Ecuador, but not from eastern Colombia and eastern Ecuador	16
Per cent of total	.04
Per cent of western	.07
Recorded from eastern Ecuador, but not from west of the Andes	55
Per cent of total	.13
Per cent of eastern	.15
Recorded from eastern Ecuador and from Colombia west of the Eastern Andes, but not from western Ecuador	25

*List of Genera of the Humid Tropical Zone of Western Ecuador
Which Have not Been Recorded from East of the Andes*

- Rhynchortyx—Nicaragua to northwestern Ecuador.
- Androdon—Colombian-Pacific Fauna.
- Polyerata—Nicaragua to northwestern Ecuador.
- Amazilia—southwestern United States to Chile.
- Damophila—Chiriqui to Ecuador.
- Sipia—Colombian-Pacific Fauna.
- Phænostictus—Nicaragua to northwestern Ecuador.

Pittasoma—Costa Rica to northwestern Ecuador.
 Microtriccus—southern Mexico to Ecuador.
 Sapayoa—Colombian-Pacific Fauna.
 Carpodectes—Honduras to northwestern Ecuador.
 Bangsia—Costa Rica to northwestern Ecuador.
 Heterospingus—Costa Rica to Ecuador.
 Mitrospingus—Costa Rica to Ecuador.
 Erythrothlypis—Colombian-Pacific Fauna.
 Zarhynchus—Mexico to western Ecuador.

Total	16
Restricted to Western Ecuador	0
Restricted to the Colombian-Pacific Fauna	4
Central America North of Costa Rica	6
Costa Rica (or Chiriqui) to Western Ecuador	6

*List of Genera Found in the Humid Tropical Zone of Eastern Ecuador
 Which Have not Been Recorded from Western Ecuador*

Nothocrax	Jacamerops ¹	Thripophaga
Mitu	Galbalcyrhynchus	Nasica
Pipile	Argicus	Ochthornis
Opisthocomus	Nonnula ¹	Syristes ¹
Pardirallus	Monasa ¹	Tyranneutes
Anurolimnas	Chelidoptera	Cirrhhipira
Psophia	Liosceles	Machæropterus ¹
Harpiprion ¹	Corythopis	Piprites ¹
Dinospizias	Pygiptila	Chiroxiphia ¹
Harpyhalæetus	Neoctantes	Neopipo
Graydidascalus	Clytactantes ¹	Laniisoma
Pionites	Thamnomanes	Heterocercus
Steatornis ¹	Herpsilochmus	Phœnicocercus
Campylopterus ¹	Pithys	Iodopleura
Taphrospilus	Sclateria	Atelodacnis
Chrysuronia	Dichrozona	Tanagrella
Chlorestes	Gymnoderus	Phœnicothraupis
Agapeta	Myospiza	Lanio ¹
Topaza	Paroaria	Creurgops ¹
Polyplancta	Hemidacnis	Eucometis ¹
Ionolaima	Phlegopsis	Cissopis
Phlogophilus	Rhopoterpe ²	Clypeicterus
Klais	Chamæza ¹	Ocyalus
Lophornis	Lochmias ¹	Gymnostinops ¹
Dromococcyx	Ancistrops	Ostinops ¹
Selenidera	Metopothrix	Gymnomystax
Brachygalba ¹	Deconychura ¹	

¹ Occurs in Colombia west of the East Andes.

² Occurs in Nicaragua.

Distribution of Species.—Excluding, as in the case of genera, marine, littoral, and migratory forms, and I allot 844 species and subspecies to the humid Tropical Zone. Of these, 585, or 69 per cent, are found in eastern Ecuador, and 389, or 46 per cent, in western Ecuador. It is interesting to observe that while the smaller range of species, as compared with that of genera, is reflected in the decreased ratio of both eastern and western forms to the total, their relative proportions to each other are much the same. That is, there has been nearly the same decrease in both eastern and western divisions of the zone.

It is when we come to compare the number of species in each section not found in the other that we observe a marked difference between the number of species and the number of genera of western, but not eastern Ecuador. Thus, 16 per cent of the total number of species and but 4 per cent of the genera are found in western but not in eastern Ecuador, further evidence, apparently, of a post-Andean evolution in western Ecuador which has not as yet developed differences of generic rank. Further support of this theory may be found in the fact that only four genera, but 186 species and subspecies, are restricted to the Colombian-Pacific Fauna.

Focusing our attention now on the 389 species and subspecies of western Ecuador, it appears that of this number 124 are exactly alike on both sides of the Andes. This uniform assemblage is composed largely of wide-ranging, non-variable birds. Thirty-two are water-birds (Herons, Bitterns, Ducks, etc.), 31 are Hawks, the two groups forming therefore, over one-half the total. On the other hand, only 3 of the 50-odd humid tropical Hummingbirds and but 3 of the 113 Woodhewers and Antbirds are common to both eastern and western Ecuador, evidence of the high degree of plasticity in these families.

Considered with reference to Central America, we find that 82 of these 124 species, common to both eastern and western Ecuador, are also represented north of Panama, 68¹ by identical forms, and 14 by subspecies. This leaves 42 of the 124 common to both sides of the Andes as unknown in Central America. With this statement is to be compared the fact that of identical forms common to western Ecuador and Central America, there are but 16 which are unknown in eastern Ecuador. While not so large as in the case of genera, it is evident that so far as identical species are concerned, the Amazonian element in western Ecuador is still more pronounced than the Central American.

Coming now to subspecies, I find 101 species which are represented

¹ Of which 44 are water-birds and Hawks.

by different races on opposite sides of the Andes. Of these, 64 are also racially represented in Central America, often by the west Ecuadorean, never by the east Ecuadorean race. In this recent and existing expression of faunal affinities, tropical western Ecuador is evidently more nearly related to Central America than to Amazonia.

Continuing the comparison, 37 species represented in eastern and western Ecuador by a different race are not represented in Central America, but 41 species represented in western Ecuador and Central America by a different race are not represented in eastern Ecuador. Here, again, we have evidence of the growth of the Central American element as we advance from genus through species to subspecies. It seems logical, therefore, to conclude that the distinctive Central American element in western Ecuador is, in large part, at least, of comparatively recent origin.

Of representative species (*e. g.* *Osculatia saphirina*, eastern, and *O. purpurata*, western) I record 30 for eastern and western Ecuador and but 4 for western Ecuador and Central America. This condition is possibly due to the length of time the eastern and western forms have been separated, and to the completeness of their separation, whereas no physical barrier to range extension exists between western Ecuador and Central America.

Finally, we find that 17 distinct species are restricted to humid western Ecuador and 58 to western Ecuador and western Colombia. It is these birds that help give character to the humid tropics of the Pacific coast of South America, in other words, the Colombian-Pacific Fauna, and their relation to our inquiry, can best be determined by considering all the characteristic forms of the fauna to which they belong.

*Comparative Distributional Analysis of the Species of Birds of the
Humid Tropical Zone of Eastern and Western Ecuador*

(*Exclusive of marine, littoral, and migratory species*)

Total species and subspecies	844
Total eastern	585
Total western	389
Per cent of eastern of total	.69
Per cent of western of total	.46
Recorded from eastern but not from western Ecuador	330
Per cent of total	.40
Per cent of eastern	.56
Recorded from western but not from eastern Ecuador or from Amazonia	135
Per cent of total	.16
Per cent of western	.35

Recorded from both eastern and western Ecuador	255
As the same form	124
As different subspecies of the same species	101
As representative species ¹	30
Per cent of total	.30

¹ Probably no two systematists would agree as to whether some of the forms in this list should be ranked as specifically or subspecifically related, but everyone would, I think, admit that they are representative.

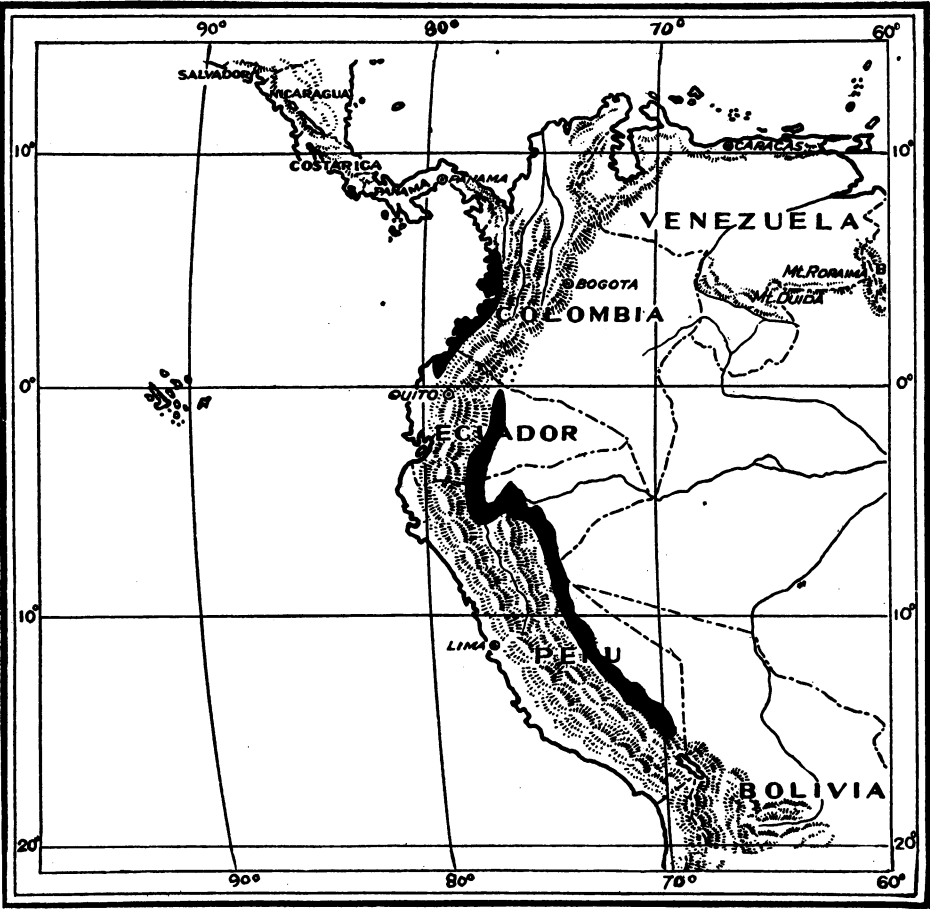


FIG. 6. Range of *Osculatia*. To illustrate the distribution of representative, non-intergrading forms of the humid Tropical Zone whose range is separated by the Andes. *Osculatia saphirina* occurs at the eastern base of the Andes from southeastern Peru to Ecuador and probably Colombia. *Osculatia purpurata* inhabits the Colombian-Pacific Fauna. They are the only known species of the genus, very closely related and strikingly unlike any other known Doves.

Distributional Analysis of the Birds of the Humid Tropical Zone of Western Ecuador
(Exclusive of marine, littoral, and migratory species) *

Total species and subspecies	389
Forms common to western and to eastern Ecuador and as identical forms (68) or races (14) to Central America	82
Forms common to western and eastern Ecuador unknown in Central America	42
Forms common to western Ecuador and Central America unknown in eastern Ecuador	16
Species represented by different subspecies in western and eastern Ecuador and in Central America by the west Ecuadorean or a different race	64
Species represented in western and eastern Ecuador by a different race and not represented in Central America	37
Species represented in western Ecuador and Central America by a different race and not represented in eastern Ecuador	41
Represented in western and eastern Ecuador by different but closely allied species	30
Represented in western Ecuador and Central America by different, but closely allied species	4
Distinct species restricted to western Ecuador or in some cases north- western Peru	17
Distinct species restricted to western Ecuador and western Colombia (and in some cases eastern Panama)	58

The Birds of the Colombian-Pacific Fauna.—The humid Tropical Zone of western Ecuador forms the southern part of a natural, strongly characterized life-area for which I have elsewhere proposed the name Colombian-Pacific Fauna.¹ Our work in Ecuador has not only enabled us to determine the southern boundaries of this fauna more definitely, but gives a more complete and accurate list of the birds which are restricted to it than has heretofore been obtained.

As has been stated (*loc. cit.* p. 106), this faunal area is distinguished by an exceptionally heavy rainfall and correspondingly luxuriant forest-growth. As we proceed from the north southward, in Ecuador, we have seen that decreasing rainfall limits the extent of forest-growth and, as might be expected, this condition is reflected in the bird-life of the region. No less than 50 of the 180-odd forms of the Colombian-Pacific Fauna find their known southern limit in northwestern Ecuador, that is, are unknown south of Santo Domingo de los Colorados. Included in this number are the four genera peculiar to the fauna and many of its most characteristic species. For example, *Crypturus berlepschi*, *Pittasoma rufopileatum*, *Cotinga nattereri*, *Carpodectes hopkei*, *Tangara johannæ*, *Bangsia rothschildi*, and *Erythrothlypis salmoni*.

¹ Dist. Bird-Life in Colombia, p. 106.

So far as our knowledge goes, the full development of Colombian-Pacific life, therefore, ends at the divide between the Esmeraldas and Guayaquil drainage systems. It is not impossible, however, that more intensive collecting would extend the known range of many of the 50 species, now unknown from south of Santo Domingo, to the Chimbo-Chanchan Valley.

There is evidently a natural faunal break at this latter point, several species being represented to the north and south of it by different forms. Examples are *Odontophorus parambæ*, *Manacus manacus*, *Basiluterus fraseri*, *Arremon aurantirostris*; and in the Subtropical Zone, *Oreopeleia bourcierii* and *Henicorhina leucophrys hilaris*.



FIG. 7. Distribution of *Momotus momota*, a species of the Tropical Zone known west of the Andes only in Ecuador and northwestern Peru, which has, apparently, reached the Pacific coast from Amazonia.

1. *Momotus momota microstephanus*
2. *Momotus momota momota*
3. *Momotus momota ignobilis*
4. *Momotus momota nattereri*
5. *Momotus momota pilcomajensis*
6. *Momotus momota simplex*
7. *Momotus momota camelensis*
8. *Momotus momota parensis*
9. *Momotus momota argenticinctus*

In the narrow humid or semi-humid strip south of the Chimbo, and in the more arid region on the coast west and northwest of it, species occur, the faunal affinities of which are uncertain. Examples are *Ortalis erythroptera*, *Leptotila ochraceiventris*, *Amazona lilacina*, *Sittasomus æquatorialis*, *Basileuterus fraseri*, and *Icterus grace-annæ*. None of these inhabits heavy, continuous forests, and it is possible that they should be placed with the Equatorial Arid forms which I believe to be pre-Andean.

It is largely this element which gives Ecuador a greater number of forms attributed to the Colombian-Pacific Fauna than are found in Colombia—178 as compared with 169, out of a total of 186.

Turning northward, I have already referred to the important fact that the area occupied by the Colombian-Pacific Fauna west of the western Andes of Colombia, forms the only existing connection between the divisions of the humid Tropical Zone in western Ecuador and western Colombia.

If our knowledge of the bird-life of this area were so thorough that we knew not only what species were present, but what were absent in the region between Buenaventura and the Ecuadorean boundary, we should then be in a position to state how many of the tropical species common to both eastern and western Ecuador are actually segregated in western Ecuador, and how many have a connection with the west Colombian portion of the humid Tropical Zone and hence, possibly, how many are of pre- and how many of post-Andean origin in western Ecuador.

As we reach the northern end of the Colombian-Pacific Fauna, it is connected with the forests of the lower Cauca-Magdalena region, and here, as I have already shown,¹ occurs a most interesting intermingling of trans-Andean and Colombian-Pacific forms. Of the first-named no less than 50-odd species are found which are unknown in western Ecuador. This fact *partly* answers our query concerning the possible number of Amazonian forms lacking in western Colombia, and it also confirms what we have learned regarding the larger number of Amazonian genera in western Colombia than in western Ecuador.

On the other hand, I find only six East Andean species or their representatives in western Ecuador or southwestern Colombia which are not present or represented in Colombia, at least north of Buenaventura, on the Pacific coast. These are *Jacana scapularis*, *Pyrrhura melanura pacifica*, *Momotus momota argenticinctus*,² *Sittasomus æquatorialis*,³ *Micromonacha lanceolata*,³ and *Vireolanius leucotis mikettæ*.

¹ Dist. Bird-Life in Colombia, p. 129.

² Of probable Marañon origin.

³ Has recently been found in Costa Rica.

About one-half of the trans-Andean birds present in the Cauca-Magdalena region, but absent from western Ecuador, are species of northern South America, unknown in eastern Ecuador. Among them are numbers of species not dependent on heavy forest-growth, and it is conceivable that they could enter Colombia from the east under existing conditions. Examples are *Aratinga wagleri*, *Chrysolampis elatus*, *Galbula ruficauda*, *Myrmeciza longipes boucardi*, *Ramphocelus dimidiatus*, and *Icterus xanthornus*.

All the species of the remaining half are present or represented in eastern Ecuador, and their presence in Colombia and absence from Ecuador west of the Andes suggests a post-Andean invasion of Colombia which western Ecuador, because of its more complete isolation, has not received. Examples are: *Odontophorus guianensis*, *Brotogeris jugularis*, *Conopophaga castaneiceps*, *Pitangus sulphuratus*, *Pitangus lictor*, *Pipra erythrocephala*, *Machæropterus striolatus*, *Iridoprocne albiventris*, *Dona-*



FIG. 8. Distribution of the Genus *Phænostictus*, representing those forms which appear to have reached Ecuador from Central America in the post-Andean period, and which have not advanced beyond northwestern Ecuador.

cobius atricapillus,¹ *Planesticus ignobilis*,² *Schistochlamys atra*, and *Ostinops decumanus*.

The presence of these birds in western Colombia and their absence from western Ecuador, in connection with the comparatively small number (6) of truly humid Amazonian birds in western Ecuador which are unknown in western Colombia, indicates the Colombian origin of many of western Ecuador's Amazonian forms.

The four endemic genera of the Colombian-Pacific Fauna not found east of the Andes are, *Androdon*, *Sipia*, *Sapayoa*, and *Erythrothlypis*. On the other hand, as stated above, I find that the ranges of 186 species and subspecies are entirely or almost entirely restricted to the Colombian-Pacific Fauna. This amazing difference between the number of endemic genera and endemic species gives added emphasis to what has already been said concerning the apparent recent growth of this fauna.

Twenty-two of the Colombian-Pacific species are represented by two races and one by three within the limits of the fauna. Treating these twenty-three cases merely as twenty-three species, a distributional analysis of the remaining 163 forms gives the following result:

Summary of a Distributional Analysis of the Species and Subspecies, the ranges of which are wholly or almost wholly confined to the Colombian-Pacific Fauna

Endemic Genera	4
Distinct species of uncertain origin	58
Representative races or species	105
Representing Central American forms	57
Representing Amazonian forms	30
Representing widespread tropical forms	18
Total	105

The large proportion of Central American forms shown by this analysis is at once noticeable. Even should we include with those of reasonably assured Amazonian origin the forms of widespread distribution in the tropics, which may or may not have come from Amazonia, Central America is still in the lead. This result amply confirms our analysis of the distribution of distinctively west Ecuadorean forms and thereby our belief that these forms are of post-Andean age.

As regards the origin of the distinct species of the Colombian-Pacific Fauna, such as the *Pittasoma rosenbergi-harterti* group, *Sapayoa ænigma*, *Erythrothlypis salmoni*, *Tangara johannæ* and *T. palmeri*, it is somewhat futile to speculate.

Not as yet recorded from eastern Ecuador but doubtless occurs there.

In my paper on Colombian birds I ventured to suggest a trans-Andean origin for the humid Pacific coast fauna in the belief that it might have come from the south. But our subsequent work in southern Ecuador, and particularly in northern Peru, discredits this theory, while a broader survey and more thorough analysis of the field shows, as has been said, that in the more recently acquired forms, at least, the Central American element prevails.

List of Species and Subspecies the ranges of which are wholly or chiefly restricted to the Colombian-Pacific Fauna¹

Tinamus major latifrons	Agyrtria viridiceps
Crypturus kerrie	Polyerata rosenbergi
" soui harterti	Amazilia tzacatl jucunda
" berlepschi	Hylocharis humboldti
Penelope orton	Damophila juliae felicianae
Ortalis erythroptera	Chlorostilbon melanorhynchus pumilus
Odontophorus parambae parambae	Thalurania hypochlora
" " canescens	" fannyi fannyi
" erythroptus	Chalybura urochrysa
Rhynchortyx cinctus australis	Calliphlox mitchelli
Columba goodsoni	Chaetocercus berlepschi
" subvinacea berlepschi	Trogonurus collaris virginalis
Leptotila pallida	" curucui cupreicauda
" ochraceiventris	Neomorphus radiolosus
Osculatia purpurata	Capito maculicoronatus rubrilateralis
Aramides wolff	" " pirrensis
Jacana scapularis	" squamatus
Herpetotheres cachinnans fulvescens	" quinticolor
Ara ambigua guayaquilensis	Ramphastos abbreviatus
Pyrrhura melanura pacifica	" swainsoni
Eucinetus pulchra	Pteroglossus erythropygius
Amazona lilacina	" sanguineus
Momotus momota argenticinctus	Notharchus pectoralis
Antrostomus rosenbergi	Nystactes noanamae
Nyctibius longicaudatus chocoensis	Malacoptila panamensis poliopsis
Androdon aequatorialis	Monasa pallescens pallescens
Threnetes ruckeri fraseri	Chloronerpes litae
Phoebastria yaruqui yaruqui	Veniliornis kirki ceciliae
" " sancti-johannis	Celeus loricatus loricatus
" superciliaris baroni	Phlaeoceastes guayaquilensis
" striigularis subrufescens	Ceophloeus lineatus fuscipennis
Eutoxeres aquila heterura	Picumnus olivaceus harterti
" " salvini	Conopophaga castaneiceps chocoensis

¹ This list differs from that given in my 'Distribution of Bird-Life in Colombia' through the exclusion of species not restricted to the fauna and the inclusion of additional Ecuadorean species.

- Thamnophilus æthiops occidentalis
 Thamnistes anabatinus intermedius
 Dysithamnus mentalis æquatorialis
 " puncticeps flemmingi
 Microrhopias boucardi consobrina
 Sippia rosenbergi
 " berlepschi
 Pyriglena pacifica
 Gymnopathys bicolor bicolor
 " " æquatorialis
 " " daguæ
 Myrmeciza maculifer maculifer
 " " cassini
 " immaculatus berlepschi
 " læmosticta nigricauda
 Hylophylax nævioides nævioides
 Phænostictus mcleani chocoensis
 " " pacifica
 Pittasoma rosenbergi
 " harterti
 " rufopileatum
 Grallaria haplonota parambæ
 " guatemalensis chocoensis
 Hylopezus dives barbacoe
 " perspicillata periophthalmica
 Synallaxis brachyura griseonucha
 Automolus pallidigularis pallidigularis
 " nigricauda nigricauda
 " " saturatus
 Philydor erythronotus
 Sclerurus guatemalensis salvini
 Xiphorhynchus erythropygius æquatorialis
 Sittasomus æquatorialis
 Lepidocolaptes souleyti souleyti
 " " esmeraldæ
 Craspedoprion pacificus
 Rhynchocyclus marginatus flavotectus
 Todirostrum sclateri
 Mionectes olivaceus hederaceus
 Pipromorpha oleaginea pacifica
 Elaenia parambæ
 Myiozetetes similis pacificus
 Megarhynchus pitangus chrysogaster
 Onychorhynchus occidentalis
 Myiobius atricaudus portovela
 Myiorticus ornatus stellatus
 Myiophobus fasciatus crypterythrus
 Mitrephanes berlepschi berlepschi
 Mitrephanes berlepschi eminulus
 Myiarchus tuberculifer nigriceps
 Pipra mentalis minor
 Chloropipo holochlora litæ
 Manacus manacus leucochlamys
 " " bangsi
 Scotothorus turdinus rosenbergi
 Sapayoa ænigma
 Tityra semifasciata esmeraldæ
 Platypsaris homochrous homochrous
 Pachyrhamphus spodiurus
 Laniocera rufescens tertia
 Lipaugus holerythrus rosenbergi
 Attila brasiliensis parambæ
 " torridus
 Cotinga nattereri
 Carpodectes hopkei
 Cephalopterus penduliger
 Polioptila bilineata
 " schistaceigula
 Microbates cinereiventris cinereiventris
 Heleodytes zonatus brevirostris
 " albobrunneus harterti
 Thryophilus nigricapillus nigricapillus
 " " connectens
 " " schotti
 " leucopogon
 Henicorhina inornata
 Leucolepis phæocephalus phæocephalus
 Microcerulus marginatus occidentalis
 " lusciniæ tæniatus
 " antioquensis
 Turdus tristis daguæ
 " maculirostris
 " obsoletus parambanus
 Vireosylva chivi griseobarbata
 Pachysylva ochraceiceps bulunensis
 " minor
 Vireolanius leucotis mikettæ
 Dendroica petechia æquatorialis
 Compsothlypis pitaiyumi pacifica
 Geothlypis semiflava semiflava
 Basileuterus fulvicauda semicinereus
 Sporophila aurita ophthalmica
 " æquatorialis
 " gutturalis olivacea
 Amaurospiza æquatorialis
 Arremonops conirostris chrysoma
 Arremon aurantirostris occidentalis

Arremon aurantirostris santarosæ	Tangara larvata fanny
Dacnis egregia æquatorialis	" cyaneicollis cyanopygia
" venusta fuliginata	Bangsia rothschildi
" berlepschi	Thraupis palmarum violilavata
" cayana cœrebicolor	Chlorothraupis olivacea
Cyanerpes cyaneus pacificus	" stolzmanni
" cærulea chocoana	Heterospingus xanthopygius
Chlorophanes spiza exsul	Erythrothlypis salmoni
Tanagra fulvicrissa purpurascens	Cacicus flavicrissus
" " omissa	" uropygialis pacificus
Tangara johannæ	Amblycercus holosericeus flavirostris
" florida auriceps	Molothrus bonariensis æquatorialis
" palmeri	Icterus grace-annæ
" lavinia lavinia	" mesomelas taczanowskii

SUMMARY AND CONCLUSIONS

1. The elevation of the Andes has not only separated tropical eastern, from tropical western Ecuador, but has divided the humid Tropical Zone of South America into apparently disconnected cis- and trans-Andean areas, and hence has severed the ranges of the identical and representative forms common to these areas.

2. Because of its greater segregation, the effects of this elevation on the fauna can be more definitely determined in that division of the Tropical Zone lying west of the Andes.

3. In western Ecuador this division is composed of humid and arid areas. The first forms the southern portion of the Colombian-Pacific Fauna which extends northward to Panama; the second forms the northern portion of the Equatorial Arid Fauna which extends southward into Peru.

4. The large, alluvial, post-Andean area of southwestern Ecuador indicates that the Amazonian forms were at first confined to north-western Ecuador, whence they have extended their range southward, a theory supported by the fact that numbers of Amazonian forms are still known in Ecuador only from the northwestern part of the country.

5. The greater height and breadth of the Ecuadorean Andes, as compared with the eastern Andes of Colombia, indicates that cis-andine Colombia was accessible to humid trans-Andean forms after western Ecuador was closed to them.

6. This theory accounts for the presence in western Colombia and absence in western Ecuador of numbers of Amazonian forms some of which reach Central America (*e. g. Ostinops; Selenidera*).

7. The genera of western Ecuador are largely Amazonian.

8. Analysis of the probable geographic origin of subspecies of western Ecuador shows a marked increase of the Central American over the Amazonian element, a difference believed to be due to the fact that the Andean uplift closed humid western tropical Ecuador to invasion from Amazonia, but left it open to the entrance of forms from the north.

9. The much larger number (30) of representative species found in western and eastern Ecuador than in western Ecuador and Central America (4) is possibly due to long and complete separation of eastern from western Ecuador and the absence of a physical barrier between western Ecuador and Central America.

10. The large number of species and subspecies distinctive of the Colombian-Pacific Fauna (186) as compared with the small number of genera (4) restricted to it indicates recent and widespread differentiation following climatic change and partial isolation due to the Andean uplift.

11. The relationships of these distinctive forms show that the post-Andean additions to the Colombian-Pacific Fauna are chiefly derived from Central America.

12. From all of which it seems probable that the Amazonian element in humid tropical Ecuador reached there from Colombia, that the differences between the avifaunas of western Ecuador and eastern Ecuador are of post-Andean age, are in part of Central American origin, in part due to the environmental influences of the Colombian-Pacific Fauna.

BIRD-LIFE OF THE ARID TROPICAL ZONE

As we have seen, the arid portion of the Tropical Zone in Ecuador is found only in the western part of the country where it forms and is entirely contained within the Equatorial Arid Fauna. Its bird-life may, therefore, be considered under that head.

The Equatorial Arid Fauna.—The marked differences between the bird-life of the humid and arid divisions of the Tropical Zone in western Ecuador impressively demonstrate the influence of humidity on the distribution and evolution of life.

In attempting to define the limits of the Equatorial Arid Fauna, we have seen that it not only borders and parallels but penetrates the Colombian-Pacific Fauna from one end of tropical western Ecuador to the other. Nevertheless, in character, and to a large degree in geographic origin, the bird-life of the two faunas is strikingly unlike. There is, indeed, a far closer resemblance between the avifaunas of the two divisions of the humid Tropical Zone lying on opposite sides of the Andes

than exists between the two divisions lying side by side on the Pacific coast.

Habitat requirement is a matter of the first importance in range-extension. Just as we look to the other humid areas for the sources of the life of humid western Ecuador, so we look to other similarly arid areas for the origin of the life of the Equatorial Arid Fauna. Under existing conditions we shall find these to the south and southeast, and there is evidence that at one time there was also an arid connection to the north. It also seems probable that no small part of this life is pre-Andean.

It is to be expected that the close physical relation between humid and arid western Ecuador, and the fact that it is often difficult to determine where one division ends and the other begins, should result in the existence of species that might with apparently equal truth be allotted to either division. In such instances I have been guided by the bird's distribution elsewhere. If, for example, it is absent from eastern Ecuador and is present in the Marañon, I have placed it in the Equatorial Arid rather than the Colombian-Pacific Fauna. *Arremon abeillei* is an example of this class.

I have also included in the Arid Fauna forms which extend far beyond its limits, such as *Melopelia meloda* and *Sporophila telasco*, which, because of the recurrent appearance of semi-arid conditions at river-mouths, find a favorable environment nearly as far south as the northern limit of the South Temperate Zone.

Some Pacific coast species appear in two or even three forms, exhibiting the effects of an environment which becomes increasingly arid as we proceed from north to south.

Among Equatorial Arid species these are:

<i>Northern</i>	<i>Southern</i>
Veniliornis callonotus callonotus	V. c. major
Picumnus parvistriatus	P. sclateri
Thamnophilus bernardi bernardi	{ T. b. piurae
	{ T. b. cajamarcae
Melanopareia elegans elegans	M. e. paucalensis
Synallaxis stictothorax stictothorax	S. s. piurae
Lepidocolaptes souleyti esmeraldæ	L. s. souleyti
Phæomyias murina tumbezana	P. m. inflava
Thryothorus superciliiaris superciliiaris	T. s. baroni
Mimus longicaudatus punensis	M. l. longicaudatus
Neorhynchus devronis devronis	N. d. nasesus
Saltator striaticollis flavidicollis	S. s. immaculatus

Treating each of these species as a unit, I allot 58 distinctive species to the Equatorial Arid Fauna in Ecuador.

Distribution of Genera.—Let us first consider the distribution of the genera to which they belong.

Genera of the Equatorial Arid Zone

Total	53
Of general tropical distribution	36
Derived from the north	4
Derived from the south	4
Endemic	9

We are at once impressed by the fact that there are only five less genera than distinctive species in the fauna. This fact may be attributed to the limited area occupied by the fauna and to its consequent inability to support many forms of essentially similar requirements. On the other hand, the fact that the 743 species of the humid Tropical Zone are distributed in 406 genera indicates greater diversity of habitat.

A more striking difference between the composition of the Equatorial Arid Fauna and that of the Colombian-Pacific Fauna is that the latter, with 186 species and subspecies, has but 4 peculiar genera, while the former with only 70-odd distinctive species and subspecies, has 9 peculiar genera. These are the following:

Genera peculiar to the Equatorial Arid Fauna:

<i>Eupelia</i> ¹	<i>Neorhynchus</i>
<i>Myrmia</i>	<i>Gnathospiza</i>
<i>Muscigralla</i>	<i>Rhynchospiza</i>
<i>Tumbezia</i>	<i>Rhodospingus</i>
<i>Piezorhina</i>	

Although there are thirteen genera of Flycatchers in the fauna and but nine of Finches, the Tyrannidæ have only two endemic genera (*Tumbezia* and the aberrant, terrestrial *Muscigralla*) and the Fringillidæ five. *Neorhynchus* and *Gnathospiza* are evidently big-billed forms of *Sporophila* and *Sycalis* respectively; *Rhynchospiza* suggests *Aimophila* of southern Mexico, but the ancestry of the remaining five genera is not now determinable.

Distribution of Species.—A study of the distributional relationships

¹ *Eupelia* occurs also at Huancabamba but in view of its wide distribution on the Pacific coast and extended altitudinal range, I am inclined to rank it as a coast rather than a Marañon form.

of the species distinctive of the Equatorial Arid Fauna yields more definite results. The 57 species (71, including subspecies) attributed to the Equatorial Arid Fauna in Ecuador may be allotted according to their apparent geographic origin as follows:

Of South Temperate origin	4
Of northern (chiefly Central American origin)	8
Found also in the Marañon valley	21
Related to an eastern Brazil species	2
Distinct species of doubtful origin	23
	—
Total	58

Let us examine these groups in detail. The first, or species of South Temperate origin, are: *Thinocorus rumicivorus pallidus*, *Poospiza bonapartei*, *Pogonospiza albiceps*, and *Speotyto*.

Thinocorus has been recorded from Ecuador only by Salvadori and Festa, the latter having found it at Santa Elena. Its occurrence there is an interesting illustration of the influence of the Humboldt Current in extending the ranges of South Temperate Zone birds. *Poospiza bonapartei* is closely related to and probably represents *P. torquata* of the Temperate Zone of Bolivia. It is found on the Pacific coast from central Peru to La Plata Island, and its presence there, like that of certain other high Andean birds, may also be attributed to the influence of the Humboldt Current.

Pogonospiza appears to have a similar history but the genus is unknown south of the central Peruvian tableland.

Speotyto ranges from Argentina to the United States and occurs both on the coast and tableland in both Ecuador and Peru. Its presence, therefore, has no definite faunal significance, though the Ecuadorean forms appear to be of southern origin.

The species of northern origin with their nearest allies are:

Melopelia meloda	Represents <i>M. asiatica</i> of western Panama to Texas.
Lepidocolaptes souleyti	Represents the <i>L. albolineatus</i> group of Mexico and northern Colombia.
Phlegopedius paucimaculatus	Represents <i>P. maculipectus</i> of Central America and is represented in the Marañon valley by <i>T. sclateri</i> .
Thryophilus superciliosus	Represents <i>T. modestus</i> of Central America.
Sporophila telasco	Represents <i>S. minuta</i> of northern South America to Mexico.

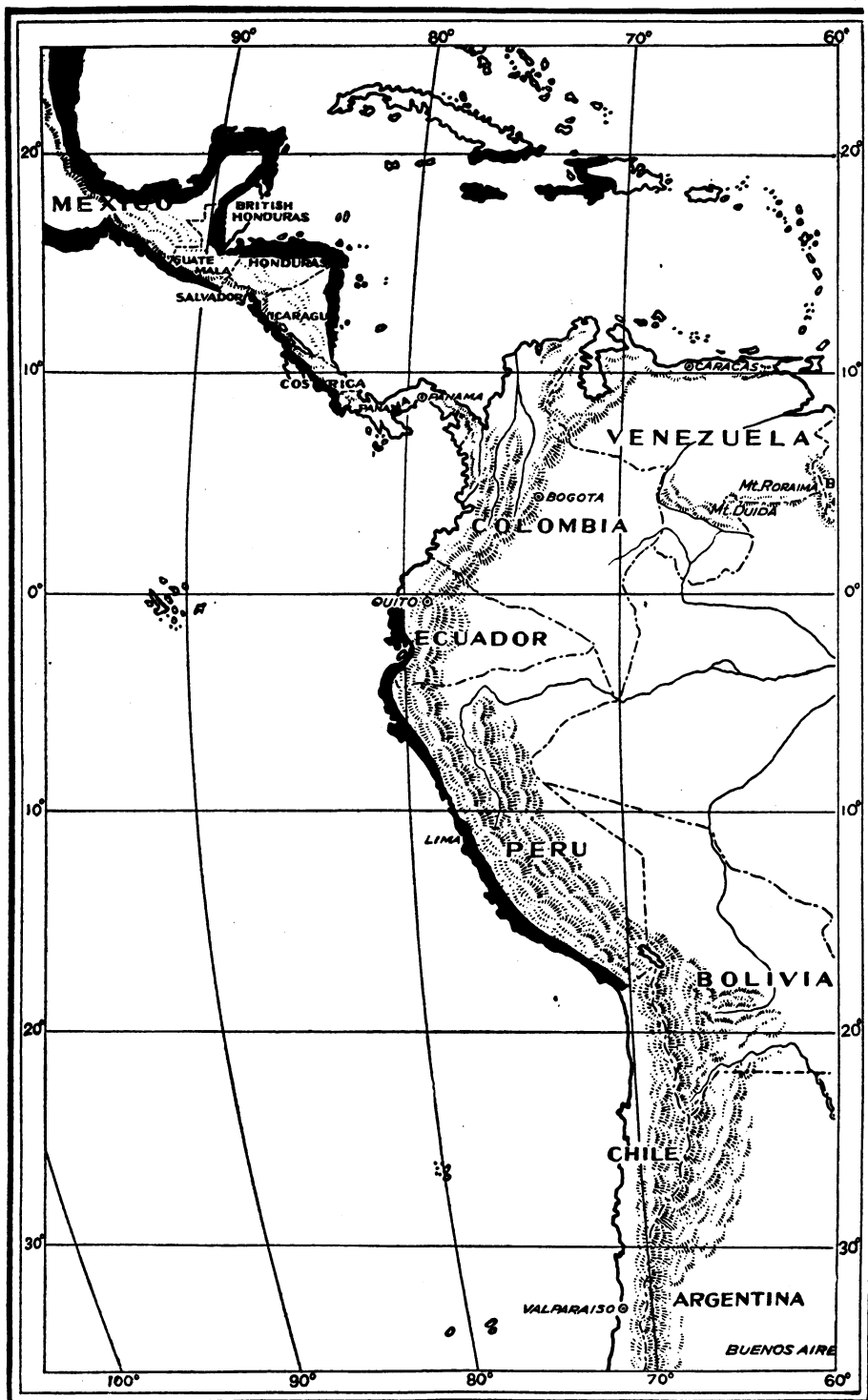


FIG. 9. Distribution of *Melopelia*, a genus of Doves represented by closely allied forms in arid and semi-arid portions of the western Greater Antilles, Mexico, Central America to western Panama, the coasts of Ecuador and Peru, but unknown in the humid area from western Panama to Bahia de Caracas, Ecuador.

- Saltator striatipectus flavidicollis* . . . Represents *S. s. striatipectus* of northern Colombia.
Dives warscewiczii Represents *D. dives* of Central America.
Icterus mesomelas taczanowskii . . . Represents *I. mesomelas* of northern Colombia and northern Venezuela to Mexico.

The significant fact connected with all these birds, and one I believe to be of much importance, is that in every instance their range is separated from that of their northern representative. With *Melopelia* this hiatus extends from Santa Elena to western Panama; with *Dives* from Manaví to Nicaragua.

Lepidocolaptes is unknown from Barbacoas to the Rio Salaqui, but being distinctly arboreal may be found in the intervening area.

To this list of western Ecuador birds, unknown throughout all or the greater part of western Colombia, but reappearing in the same or a representative form in Panamá or Central America, may be added,

Heleodytes zonatus brevirostris
Arremonops conirostris chrysoma
Amaurospiza æquatorialis
Sporophila schistacea incerta
Oryzoborus occidentalis

Possibly all these birds should be allotted to the arid, rather than to the humid division of western Ecuador, for they agree with those species of the Arid Equatorial Fauna of northern origin, mentioned above, in not being forest inhabitants.

I have before referred to this western Colombian hiatus in the range of forms common to western Ecuador and Central America, and so far as trans-Andean species are concerned, subsequent research confirms the theory in explanation of this phenomenon there offered¹; but it should be especially noted that none of the species mentioned above is Amazonian, and hence, so far as western Ecuador is concerned, they presumably must be of northern origin. How, then, shall we account for their apparent absence in western Colombia? Possibly we may find an answer to this question in the fact that, as they are not forest-inhabiting, the densely and continuously forested coastal region of western Colombia does not offer them a suitable habitat. We cannot, however, believe that they have acquired their present range under existing conditions, and it is not impossible that they may have reached western Colombia before the western Andes had attained a sufficient altitude

¹ Dist. Bird-Life in Colombia, p. 110; maps, pp. 112, 113.

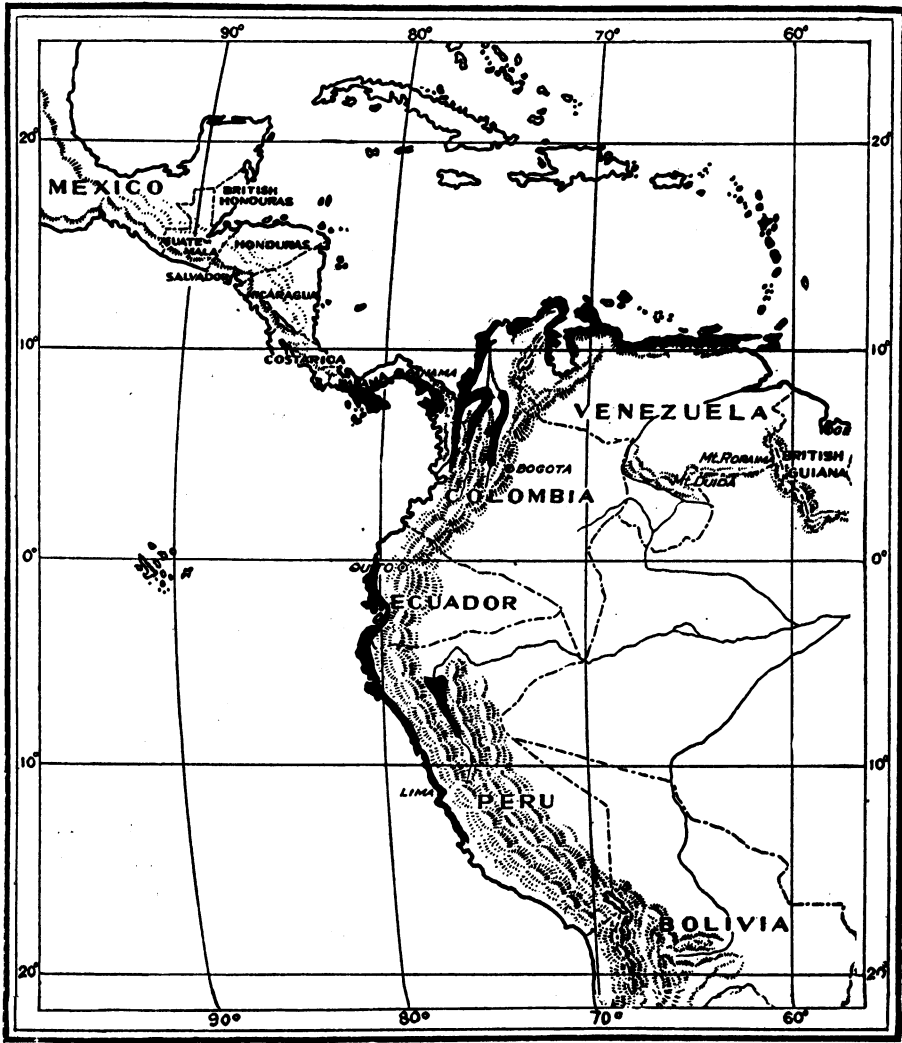


FIG. 10. Distribution of the *Saltator striatipectus* group, a species of the arid Tropical Zone which has apparently reached the Marañon valley from the Pacific coast, and the range of which appears to have been broken by the elevation of the western Andes and consequent humidity in western Colombia.

to produce the rainfall and consequent forest-growth which now characterizes the Colombian coast.

In two instances these arid forms of northern origin, and which are unknown in Amazonia, have reached the Marañon Valley. They appear there as *Saltator striaticollis peruvianus* and *Pheugopedius sclateri sclateri*.

In both cases the Marañon Valley form is much nearer to the Colombian than it is to the west Ecuadorean form; *Saltator striaticollis flavidicollis* in one case, and *Pheugopedius paucimaculatus* in the other. Nevertheless, if the Marañon Valley bird has not been derived from the Pacific coast race I am wholly at loss to account for its origin.

We turn now to those cases, 21 in number, where the Pacific coast birds are found also in the Marañon. They are the following:

List of Species of the Equatorial Arid Fauna which occur or are represented in the Marañon Valley

COAST	MARAÑON
Aratinga rubrolarvata	A. rubrolarvata
Aratinga frontata	A. frontata
Psittacula coelestis	P. coelestis
Brotogeris pyrrhopterus	B. pyrrhopterus
Veniliornis callonotus major ¹ } . . .	V. c. major
" " callonotus ² } . . .	
Thamnophilus bernardi bernardi ¹ } . . .	Probably same as, or very near coast
" " piurae ² } . . .	form, <i>T. b. piurae</i> .
Melanopareia elegans elegans ¹ } . . .	Marañon form <i>M. maranonicus</i> , an in-
" " paucalensis ² } . . .	intermediate between Pacific coast and
	southern Brazil forms.
Furnarius cinnamomeus	F. cinnamomeus. Represents <i>F. leucopus</i>
	of eastern Peru.
Synallaxis stictothorax stictothorax ¹ } . . .	S. s. chinchipensis
" " maculata ² } . . .	
Phaemyias murina tumbezana ¹ } . . .	P. m. tumbezana. Represents <i>P. murina</i>
" inflava ² } . . .	of Trans-Andea.
Haplocercus meloryphus fulviceps	H. m. fulviceps. Represents <i>H. melory-</i>
	<i>phus</i> , Argentina to Caribbean.
Camptostoma obsoletum sclateri	C. o. sclateri. The species trans-Andean.
Myiophobus fasciatus crypterythrurus . . .	M. f. crypterythrurus. The species Ar-
	gentina to Panama.
Pyrocephalus rubinus heterurus	P. r. saturatus. The species Argentina to
	Texas.
Myiochanes brachytarsus punensis	M. b. punensis. The species trans-
	Andean.
Heleodytes fasciatus pallescens ¹ } . . .	H. f. fasciatus
" " fasciatus ² } . . .	
Mimus longicaudatus longicaudatus ² } . . .	M. l. longicaudatus
" " punensis ¹ } . . .	
Turdus reevei	T. reevei
Cyclarhis virenticeps	C. contrerasi
Sicalis flaveola valida	S. f. valida. The species trans-Andean.
Arremon abeillei	A. nigriceps

¹ Northern form. ² Southern form.

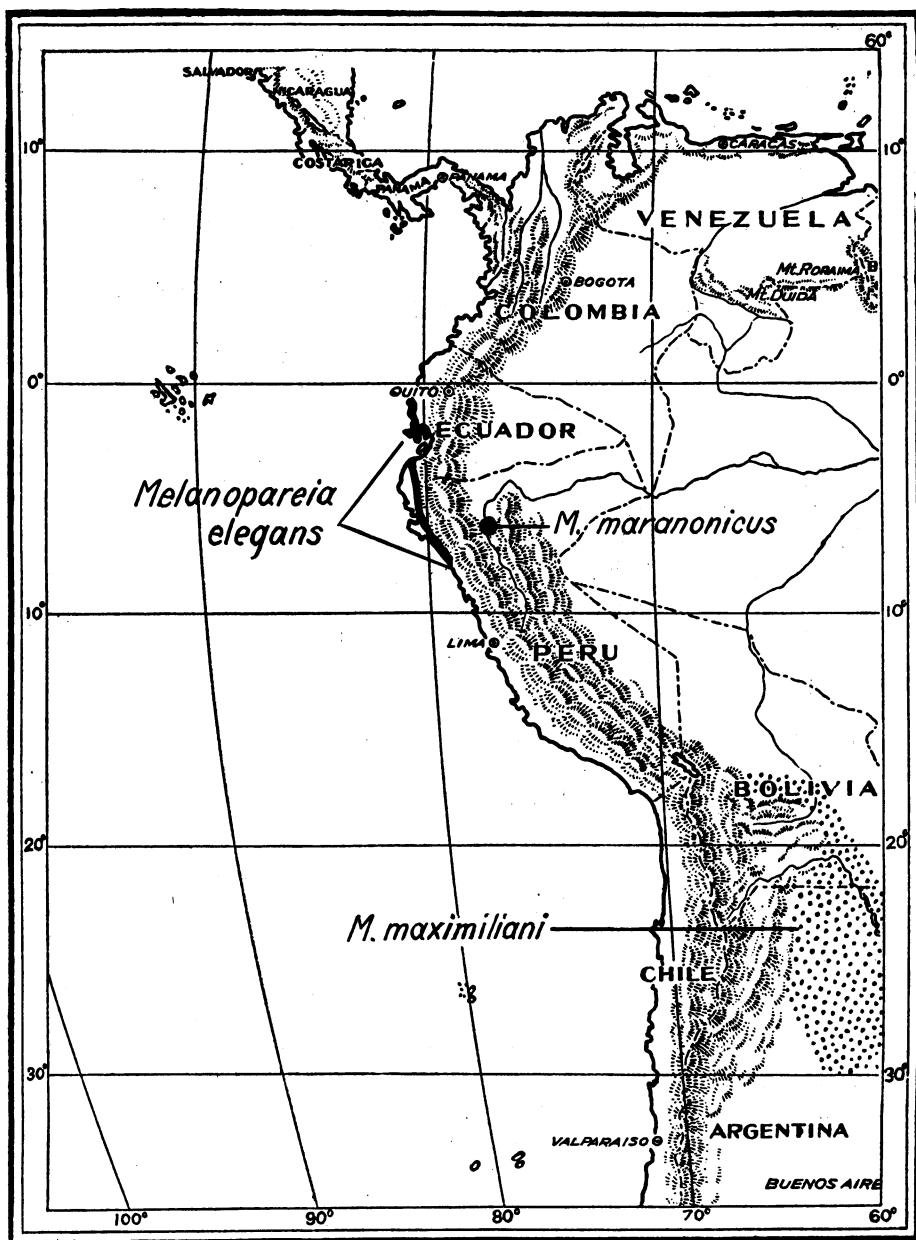


FIG. 11. Distribution of the *Melanopareia elegans* Group, illustrating the apparent trans-Andean origin of an Equatorial Arid species which finds its nearest relative in *M. maximiliani* of Bolivia and Argentina.

Eight, or possibly ten, of these birds are trans-Andean in origin and have apparently reached the Marañon Valley from the interior of South America. Their genera are *Melanopareia*, *Furnarius*, *Phæomyias*, *Hapalocercus*, *Camptostoma*, *Myiophobus*, *Pyrocephalus*, and *Sicalis*, and, possibly, also *Myiochanes* and *Mimus*. We may then consider that these birds (certainly the first eight of them) have reached the Pacific coast from the Marañon Valley.

We have left two species of probable trans-Andean origin, though neither of them is known from the Marañon Valley. The first, *Fluvicola climazura atripennis*, has no known relative nearer than eastern Brazil, but although the ranges of the two forms are separated by the continent, including the Andes, the birds are so nearly alike that I rank them as subspecies.

The second, *Burhinus* (*Edicnemus*) *superciliaris*, is a distinct species of a very ancient type of which only two other species are found in the Western Hemisphere, *B. bistratus* from the Amazon Valley to Mexico, and *B. dominicensis* of Haiti. Whether *B. superciliaris* of the Pacific coast was derived from the Amazon or whether it should be placed with birds like *Melopelia* and *Dives*, which apparently have come from Central America, I cannot say. In any event, the restriction of a strongly marked species of this old group to the Pacific coast is evidence of the age of the avifauna of that region.

We have not to resort to theory to establish a connection between the coast and the Marañon, for the ranges of some Equatorial Arid species common to the Pacific coast and the Marañon Valley are still but slightly separated, if they are not actually connected. Both Noble and Watkins found *Psittacula caelestis*, *Furnarius cinnamomeus*, *Pyrocephalus rubinus*, *Myiochanes brachytarsus*, and *Turdus reevei* at Huancabamba, which has an altitude of 6,400 feet. We have seen that the Porculla Pass in the Western Andes of Peru, south of Huancabamba has an altitude of only 7,078 feet. This is the lowest pass in the Andean system between southern Chile and Colombia, and it is therefore quite probable that these species may range between the coast and valley without a break.

Huancabamba evidently has a uniform neutral climate unmarked by extremes of either heat or cold. In addition to the tropical species just mentioned as occurring there, such characteristic Temperate Zone forms as *Patagona gigas* and *Turdus gigas* are also found there, a surprising association.

Before proceeding with our inquiry concerning the origin of the Equatorial Arid Fauna, I should like to call attention to the fact that

certain of the birds just mentioned, following different routes, have reached the Pacific coast at two widely separated points, or they have reached the Pacific coast and the Caribbean. One route, we have just seen, is by way of the Marañon, the other is through northern Colombia. Illustrations are *Phæomyias murina*, *Hapalocercus meloryphus*, *Myiophobus fasciatus*, and *Sicalis flaveola*. This method of distribution creates an apparent hiatus in the range of these birds between the Equatorial Arid Fauna and the nearest point in Colombia at which they occur.

What now, we ask, is the history of those species common to the Marañon Valley and the Pacific coast which are unknown and unrepresented east of the Marañon? Examples are *Psittacula caelestis*, *Brotoyeris pyrrhopterus*, *Veniliornis callonotus*, *Synallaxis stictothorax*, *Turdus reevei*, and *Arremon abeillei*, all markedly distinct. Have they, too, reached the coast from the valley, or does the valley owe them to the coast? While it is impossible definitely to answer this question, our distributional analysis supplies some facts which evidently bear upon it. We notice, in the first place, that while in only three instances the Marañon form differs from the coastal one, in five instances the species is represented by two forms on the coast. In other words, the species shows more variation on the coast than it does in the Marañon Valley, and this in spite of the more or less effective physical barrier presented by the West Andes. This may indicate that the environment is more varied on the coast, or it may mean coastal origin. If the latter, it follows that certain of the species in this group have reached the Marañon from the Equatorial Arid Fauna. Again, we have found that this fauna has 23 distinct endemic species, including eight genera which are unknown in the Marañon Valley, while the latter is known to have but 4 distinct endemic tropical species which are unknown or unrepresented on the coast. They are:

Psittacula xanthops
Synallaxis maranonicus
Turdus maranonicus
Inaspiza watkinsi

The autochthonous species of the Equatorial Arid Fauna, all of which (excepting *Eupelia*) are unknown in the Marañon Valley are the following:

<i>Crypturus transfasciatus</i>	<i>Elaenia leucospodia leucospodia</i>
<i>Eupelia cruziana</i>	“ “ <i>cinereifrons</i>
<i>Chamaepelia buckleyi</i>	<i>Empidonax griseipectus</i>

Leptotila ochraceiventris
Chalybura intermedia
Myrmia micrura
Picumnus sclateri
 " *parvistriatus*
Synallaxis tithys
Muscigralla brevicauda
Tumbezia salvini

Myiodynastes bairdi
Tyrannus niveigularis
Piezorhina cinerea
Rhodospingus cruentus
Pogonospiza albiceps
Rhynchospiza stolzmanni
Gnathospiza raimondi
Cyanocorax mystacalis

It is evident, therefore, that the Equatorial Arid Fauna is much richer in peculiar forms than the Marañon Valley, and this in spite of the fact that it is the more isolated of the two regions. The latter is more accessible to the trans-Andean region, and its various tributary valleys (including the Huancabamba, Chinchipe, and Utcabamba) are quite as well fitted to support life as that portion of the Equatorial Arid Fauna in which all its endemic forms occur.

The latter is accessible to the interior of South America only through the Marañon Valley, and it has received but few forms from the south, which indeed has but few to give it; while to the north it is separated from the nearest arid region by the forests of northwestern Ecuador and western Colombia.

The evidence, therefore, indicates that the Equatorial Arid Fauna is older than that of the Marañon, and that, excluding forms of obvious trans-Andean origin (like *Furnarius* and *Phæomyias*), the Marañon has received more life from than it has given to the Equatorial Arid Fauna.

The major conclusion to be derived from this theory is that the distinctive bird-life of the Equatorial Arid Fauna is pre-Andean and hence that prior to the elevation of the Andes this region was, in part at least, arid or semi-arid.

SUMMARY AND CONCLUSIONS

1. The bird-life of the Equatorial Arid Fauna is strikingly unlike that of the adjoining Colombian-Pacific Fauna.

2. The fact that the number of its species barely exceeds that of its genera indicates that the area it occupies is too small and too uniform in character to support more species of essentially similar habitat requirements.

3. The number of endemic genera is more than double that of the Colombian-Pacific Fauna, and in proportion to the number of species many times greater. The number of endemic species is also proportionately greater.

4. More than half the endemic genera are Finches.

5. But few forms have been derived from the south.
6. To the eight species derived from the north may be added six more non-forest-inhabiting species, the presence of all indicating the former existence of a connection between semi-arid Ecuador and similar regions to the north.
7. This connection has disappeared through increased rainfall following the greater elevation of the West Andes.
8. Of the twenty-one forms common to the Equatorial Arid Fauna and Marañon Valley, about one-half have been derived from the interior of South America.
9. The Marañon Valley and Pacific coast ranges of some of these birds are still but slightly separated and may be connected.
10. The Equatorial Arid Fauna is older than that of the Marañon to the life of which it has contributed.
11. The more distinctive forms of the Equatorial Arid Fauna are indigenous and pre-Andean.
12. Prior to the elevation of the Andes, the coastal region was, in part, at least arid.

THE SUBTROPICAL ZONE

Boundaries, Characteristics, and Habitats

The Eastern Division

The Western Division

The Peruvian Extension of the Western Division

Habitats of the Subtropical Zone

The Bird-Life of the Subtropical Zone

Bird-Life of the Eastern Division

Bird-Life of the Western Division

Bird-Life of the Peruvian Extension

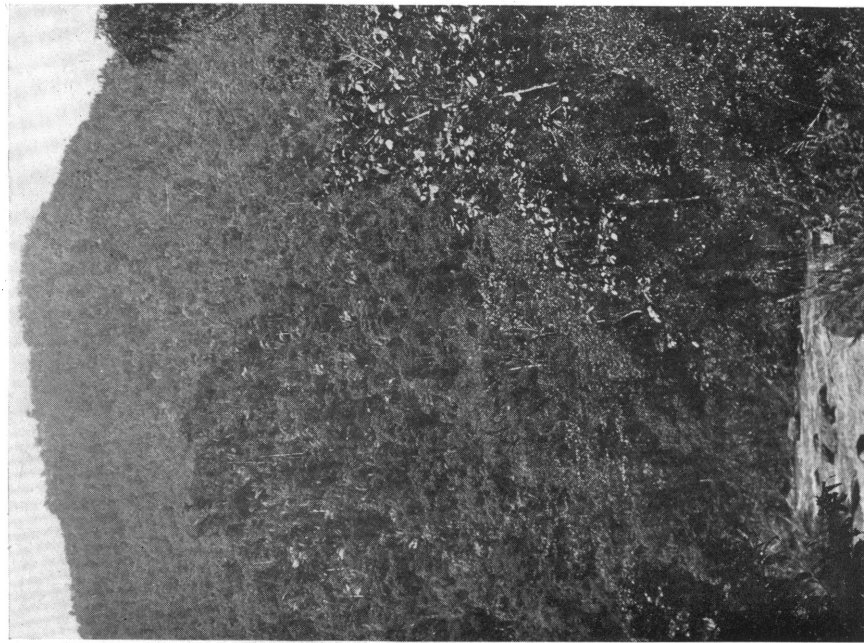
The Origin of Subtropical Bird-Life

Summary and Conclusions

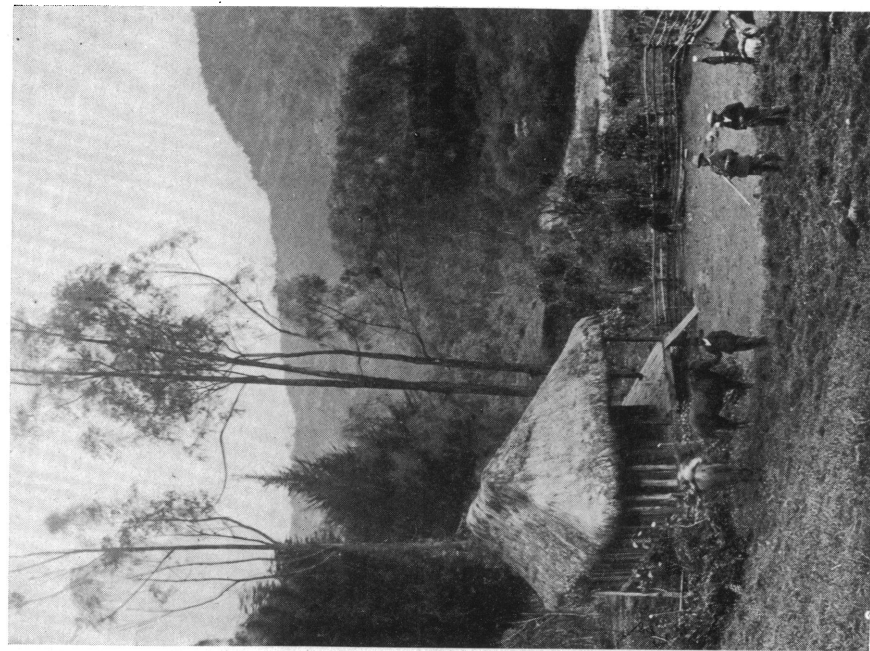
THE SUBTROPICAL ZONE

ITS BOUNDARIES, CHARACTERISTICS, AND HABITATS

The Subtropical Zone was the first life-zone to be developed by the Andean uplift. It is consequently the oldest of the three zones above the tropics. When the Andes had reached only subtropic heights, we may assume that the zone was continuous, the fauna of the summit and of both eastern and western slopes down to tropical altitudes being



RIO-CHANCHAN NEAR JUNCTION WITH CHIGUANCAY
(ALT. 2,800 FT.)
(Subtropical Zone). May 1916



MILLIGALLI, ON TRAIL TO SAN DOMINGO DE LOS COLORADOS
Home of L. Söderstrom, 1877-79 (alt. 6,000 ft.)
(Subtropical Zone). 1927

essentially the same. With subsequent elevation and the appearance of the Temperate and Paramo Zones, the Subtropical Zone became separated into eastern and western divisions. In Ecuador these divisions have no direct connection, but in Colombia they sometimes meet on summits which do not reach above subtropical levels or around the ends of the mountain ranges. Under existing conditions, therefore, any interchange of life between the two divisions of the Subtropical Zone in Ecuador must occur through Colombia. It is not, however, likely that any such interchange occurs, and the existing differences between the eastern and western Subtropical Zones of Ecuador doubtless represent changes which occurred in their making or since they were separated.

The Subtropical Zone is the zone of 'mountain rain' forest. If the altitudes at which the zone normally occurs lie in a 'rain shadow,' and are thus deprived of precipitation, the forest and its bird-life are both lacking and the zone as a faunal area is practically undeveloped. Its place is then largely filled by an upward extension of the arid Tropical, and downward extension of the arid Temperate Zone.

In Ecuador we have seen that there is a marked difference in the heights to which the Tropical Zone ascends on the Amazonian and Pacific slopes. It follows, therefore, that there is a corresponding difference in the altitude to which the Subtropical Zone descends. The causes producing this variation apply only to the Pacific side and, consequently, prohibit further generalization about the Subtropical Zone as a whole. We may, therefore, attempt to outline its two major divisions.

Eastern Division of the Subtropical Zone.—That portion of the Subtropical Zone which lies on the Amazonian slopes of the Andes in Ecuador is both geographically, as well as faunally, a part of the same zone which occupies the eastern slope of the eastern Andes of Colombia. There is, indeed, no break in the Colombian-Ecuadorean section of this range. It also has a surprising affinity with the western Colombian Subtropical Zone. To the south, however, although the faunal affinity with Peru is strong, it is less close than it is with Colombia, while the passage of the Marañon through the eastern Andes prevents actual continuity.

We have so little exact knowledge of the topography of eastern Ecuador, and so small a proportion of the birds collected there is accompanied by dependable data as regards either altitude or place, that any attempt to define the geographic and altitudinal limits of the eastern division of the Subtropical Zone must be considered as only the first step toward this end.

The work of various collectors at Baeza, Stolzmann's work at Machay and Mapoto, Festa's in the Gualaquiza region, and that of our own expeditions at Zamora alone supply reliable altitudes. From them it appears that the lower limit of the eastern Subtropical Zone lies between 3,500 and 5,000 feet.

The Olallas had no means of determining altitude, but their collections, as well as their daily temperature readings, show that the lower level of the Subtropical Zone on Sumaco is at San José. Here they took such characteristic subtropical species as *Oreopeleia bourcierii* and *Xiphorhynchus triangularis*. Baeza, at 5,000 feet, is wholly subtropical, and it is not probable therefore that well-developed tropical fauna is found in this section above 4,000 feet.

A few tropical species were found by Stolzmann at Machay and Mapoto, and our expeditions found numbers of them at Zamora.

Except where it is severed by rivers or isolated on outlying spurs, the Subtropical Zone in eastern Ecuador is apparently continuous.

Western Division of the Subtropical Zone.—The influence exerted by the Humboldt Current on the climate of the Pacific coast of South America is manifest, as we have seen, on the coast of Ecuador, at least from Bahia de Caraquez southward. We shall now find that it is evident, not only on the coast, but also on the mountainsides.

In Peru, the comparatively low coastal temperature brings the Condor, *Larus serranus*, *Phaenicopterus chilensis*, and other birds from Andean heights to the seashore; in Ecuador, it apparently induces numbers of subtropical species to descend to what we are accustomed to consider the Tropical Zone. Thus, there is produced a mingling of species to the confusion of the zoögeographer and in defiance of his so-called 'laws.' Under these conditions, normal altitudinal boundaries are meaningless and forms are found which originated in zones above the one in which they live.

In default of meteorological data, we can discuss this subject only in its major aspects. There are, doubtless, many factors the action of which can be determined only by local observations extending through the year. At Puente de Chimbo (alt. 1,130 ft.) we found the primeval vegetation fresh and luxuriant when the plains of the Equatorial Arid Fauna, distant only 35 miles, were dry and cracked and the trees losing their leaves. But we observed that each night the hillsides were drenched with garúa, a drizzling mist more penetrating than rain. This humidity accounted, not only for the green and thriving vegetation but for the comparatively low temperature, the mercury at 6.30 A.M. registering only 64° F.



RIO CHIMBO AT PUENTE DE CHIMBO (ALT. 1,130 FT.)
The 'stringers' of the bridge may be seen up the river.
(Junction of humid Tropical and Subtropical Zones.) July, 1922.



HUIGRA, FROM THE EAST
Showing mountains that place the Huigra Valley in a 'rain shadow' (alt. 4,000 ft.)
May, 1916.

It was at this point that Stolzmann (already quoted in full, see p. 36) found a species of climbing cane (*Chusquea*) which in the eastern Andes he observed only between 7,000 and 9,000 feet; and here there are so many characteristic subtropic birds that we cannot avoid bringing the lower limits of the Subtropical Zone down to this level. Examples are:

Siptornis erythrops erythrops
Xenicops temporalis
Mecocerculus calopterus
Pheugopedius mystacalis

Henicorhina leucophrys
Catharus dryas dryas
Basileuterus bivittatus chlorophrys
Chlorospingus flavigularis marginatus

Similar faunal conditions prevail in the valley of the Chanchan between Bucay and Huigra, but wings of the mountains form screens which throw an effective rain shadow on the Huigra Valley, which, at an altitude of 4,000 feet, where dense forest might be expected to cover the mountain slopes, is semi-arid. It is evident, therefore, that only detailed examination of the entire western slope of the Andes would supply data for anything even approaching an exact map of its faunal areas. What we have to say here concerning them must be considered only as approximating the truth.

In northwestern Ecuador, as we retreat from the influence of the Humboldt Current, conditions in the Subtropical as well as in the Tropical Zone become more normal, and the lower boundary of the zone is found at a considerably higher altitude. It extends but little below Mindo (alt. 4,140 ft.) and does not reach Paramba (alt. 3,500 ft.).

In southwestern Ecuador conditions are exceedingly complex and, judged from specimens alone, disconcertingly contradictory. Although we have done more work here than in any other part of Ecuador, I frankly confess that lack of field experience prohibits my interpretation of it, and I must leave this interesting task to my colleague, Mr. Anthony, now monographing the mammals of Ecuador.

The Peruvian Extension of the Western Subtropical Zone.—In June, 1919, Mr. Harry Watkins left Payta, Peru, northbound, with instructions to discover the point at which humid forest-growth first appears on the Pacific slope. This, we believed, would form the southern limit of the humid Tropical or Subtropical Zone on the Pacific coast. The region through which he passed is so little known and of so much faunal interest that I present an abstract of his notes.

“Proceeding from Payta to Sullana by train, the remainder of the journey to Alamor and thence to Tumbes was made on foot, donkeys and mules being used to carry equipment and specimens.

"From Sullana it is 38 miles to Lamor (alt. 350 ft.) through a 'waste desert.' There is heavy algaroba growth for 4 miles up the Rio Lamor, when one enters the 'quebrada de Pilares' which leads to a change from arid desert flats to a succession of small hills covered with prickly bushes. This continues to the settlement of Pilares (alt. 750 ft.). An hour north of Pilares, trees come into view as if by magic and the atmosphere softens and becomes damp. Eighteen miles from Pilares we reached the summit of the quebrada at 1,700 feet. Trees, although not of large size, are abundant, with small, pineapple-like parasites and white 'moss' on their branches. The next stop was Paletillas (alt. 1,550 ft.) on a small river which flows into the Tumbez. The climate is much cooler than that of the flat country below, ranging from 62° F. at 6 A.M. to 80° at noon and 70° at night. It is said that much rain falls here from October to March. The presence of a large straight cactus indicates that we are still in a slightly arid zone. I took Motmots (*Momotus momota argenticinctus*) and Trogons (*Curucujus melanurus mesurus*) here.

"Our next camp was at the foot of Cerro Verde, distant 18 miles. This hill has an altitude of 2,650 feet. From its summit I had a beautiful view of the surrounding country and could see the southernmost forested range of mountains far to the south; west and northwest was desert while to the northeast and east were hills covered with continuous forest.

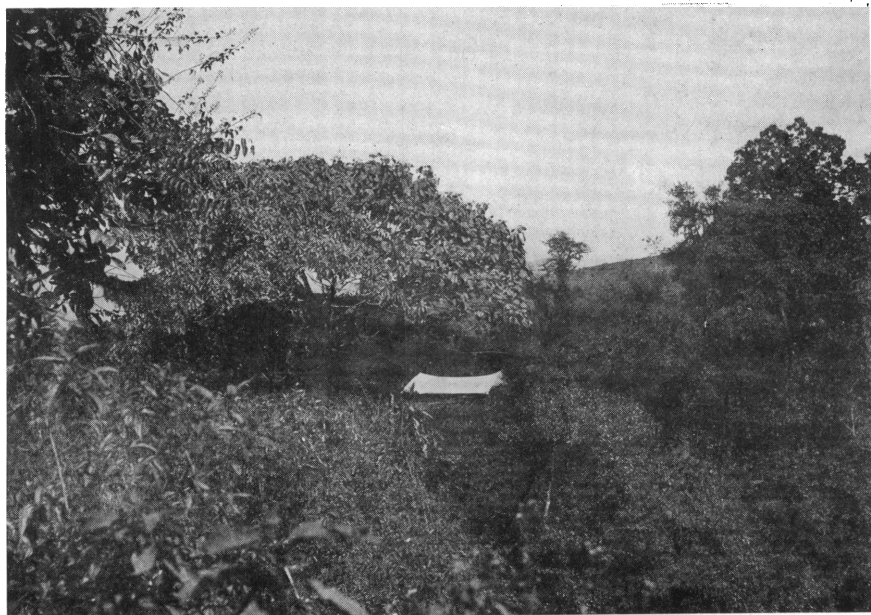
"Ten miles further north lies Milagros (alt. 2,200 ft.). The vegetation is heavier and more varied than at Paletillas and I took two Ant-Thrushes (*Grallaria watkinsi*).

"Twenty-four miles over very rough country, crossing innumerable quebradas, and climbing to the summit of the highest ridge, brought us to Alamor (alt. 4,350 ft.). The surrounding country is beautiful with an exuberance of vegetation due to excessive humidity. From July 9 to 15 the temperature here at morning, noon, and night averaged 60°, 82°, and 64° F., respectively.

"From Alamor I started for Tumbez. The trail leads over three mountains and then drops abruptly through a section of dense, dark, exceedingly tall forest some 15 miles in length. After traversing this heavy forest and descending rapidly, another 9 miles of more open, semi-arid forest brings us to the Rio Tumbez (locally called 'Pullango') at an altitude of 900 feet. On the banks of this river, at this point, the vegetation is varied; in some instances, one notes long sections of fine tropical forest, while only a thousand yards or so up or down the river one can find long tracts of almost arid country, the tree-growth poor and stunted and dried up, with numbers of large cacti. After leaving



CAMP AT LA LAMOR, PERU, BENEATH THE ALGORROBA TREES
(ALT. 350 FT.)
(Equatorial Arid Fauna.) June, 1919.



CAMP AT ALAMOR, ECUADOR (ALT. 4,350 FT.)
(Subtropical Zone.) July, 1919.

the Tumbez, each mile leads into a more arid country, and two days of tiresome traveling, leaving the river to the south, crossing deserts and following down small streams bordered by a dilapidated growth of algaroba bushes, brought us again to the Tumbez, a few miles above the town of the same name. Here the streams were bordered by mangroves, but I was prevented from collecting in them because of a local 'revolution.'"

Watkins' description of forest-covered mountains lying south and east, as well as northeast, from Cerro Verde suggested a still more southern extension of the humid zone. Three years later he made the interesting discovery that arms of the humid Tropical and of the Subtropical Zones reach as far south as Palambla (alt. about 4,000 ft.) on the Pacific slope of the Andes southwest of Huancabamba and on the trail between that town and Payta. Here he secured several species new to science and others which had not before been taken in Peru, both emphasizing its subtropical character and adding to it features which distinguish this narrow area from any other part of the Subtropical Zone.

It will be observed that not only is the Peruvian arm the most southward extension of a subtropical element on the Pacific coast, but that as a forested or partly forested subtropical area it is extremely isolated. There is no forest on the slopes below it; there may be local areas of Temperate Zone forest above it, but there are neither subtropical nor humid tropical forests in the Marañon Valley.

To the north, this Peruvian element extends at least to Zaruma, and from Alamor northward it is associated with the forms which characterize the Subtropical Zone in western Ecuador. To the south, information we have recently received leads us to believe that it may reach as far as the Pacific slopes east of Chiclayo. This is the type-locality of *Automolus ruficollis* (Tacz.), a fact which confirms reports we have had of forest-growth in that region.

HABITATS OF THE SUBTROPICAL ZONE

As before stated, the Subtropical Zone is preëminently a zone of forests. Remove the forest and the zone and its life disappears as a biotic unit. It might be imagined, therefore, that there would be no diversity of habitat in the subtropics, and, to a large extent, this is true. But within the forest itself there is wide divergence in the character of the vegetation, accompanied by a perennial luxuriance of growth which evidently implies unfailling and varied supply of food for insectivorous and frugivorous birds.

We have accorded nine types of habitat to the Tropical Zone, but its 743 species are distributed in 406 genera. The 55 species of the Equatorial Arid Fauna are sufficiently unlike to be placed in 52 genera, but the 222 species which characterize subtropical forests require only 142 genera.

Detailed study would show that what appears to be but one habitat is a composite of several. There is, for example, no competition between the Tanagridæ of the tree-tops, the Dendrocolaptidæ of the tree-trunks, the Formicariidæ of the undergrowth and ground, or the Tyrannidæ that feed in the air.

Nevertheless, so boundless is the supply of small fruits on which they chiefly feed that no less than 11 species of Tanagers of the genus *Tangara* are found in the eastern Subtropical Zone, 10 in the western, evidence of a habitat which can support many forms of essentially similar requirements without undue competition.

When, through insufficient rainfall, the subtropical forest is lacking, in place of luxuriant vegetation we then have barren hillsides grown only with grasses, ferns, and cacti, and with bushes and stunted trees along the water-courses. Such a condition exists, for example, at Huigra in the Chanchan Valley. An essentially similar habitat is produced when deforestation is followed by crops, pasturage, and scrubby second growth, as is well illustrated about Pallatanga.

Under these circumstances, the arid Tropical and the arid Temperate Zones meet within the altitudinal limits of the Subtropical Zone. Representing the former are, *Eupelia buckleyi*, *Leptotila verreauxi decolor*, *Aratinga rubrolarvata*, *Pyrocephalus rubinus*, *Troglodytes musculus albicans*, *Saltator maximus*, *Thraupis cana quesita*, *Ramphocelus icteronotus*. From the latter come *Turdus gigas gigantodes*, *Atlappetes leucopterus*, *Brachyspiza capensis peruviana*, and *Pheucticus chrysopleplus chrysogaster*.

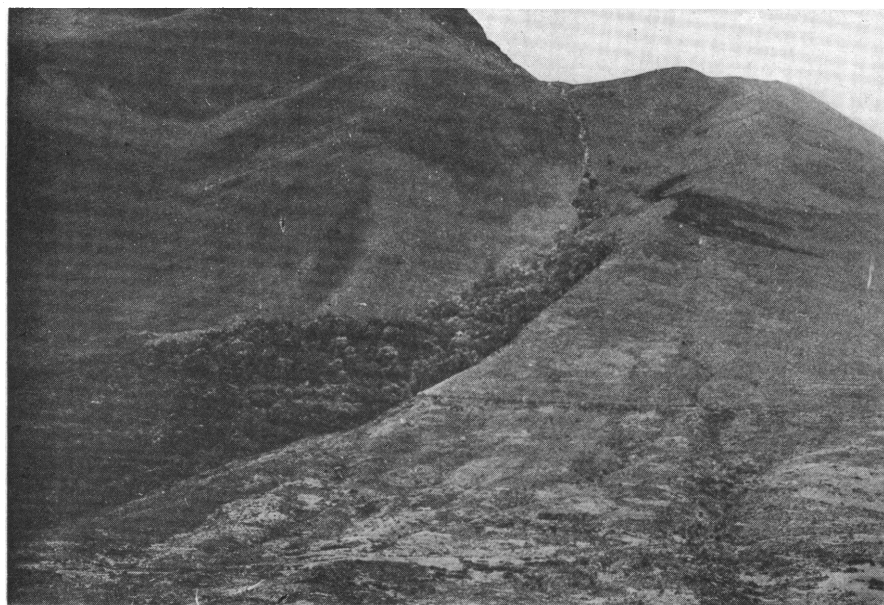
As the second growth increases in density it may become the home of certain low-ranging subtropical species, but almost the only distinctively subtropical forms found in these semi-arid subtropical altitudes are *Grallaria ruficapilla* and *Xanthoura yncas*.

It is not necessary to repeat here¹ the enumeration of the birds which characterize the humid or true Subtropical Zone, but the Dipper (*Cinclus*), and the Torrent Duck (*Merganetta*) might be set aside as species of a fluviatile subtropical group.

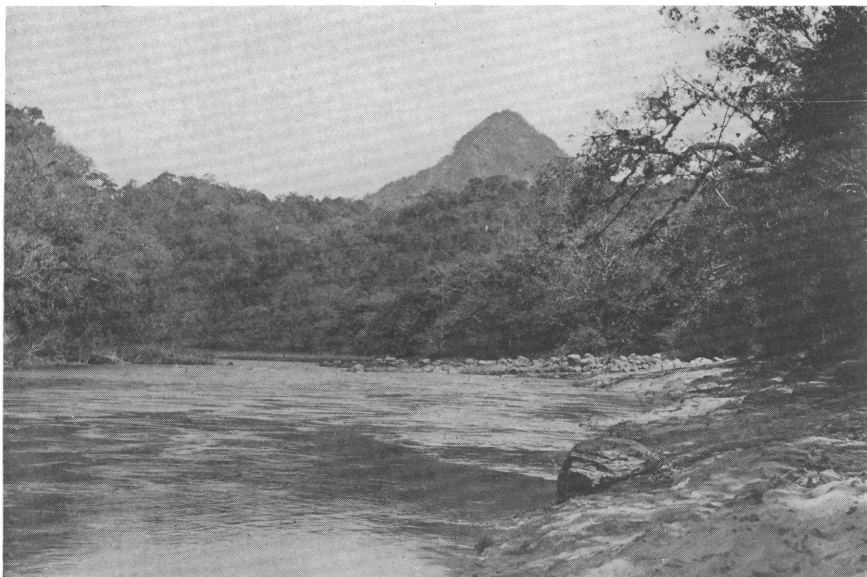
¹ See Distribution of Bird-Life in Colombia, p. 141.



UPPER BORDER OF TEMPERATE ZONE FORESTS
Looking west from the west slope of Mojanda range. August, 1922.



WEST SLOPE OF MOJANDA RANGE
Showing upward extension of humid Temperate forest into the Paramo Zone.
August, 1922.



RIO TUMBEZ—HERE KNOWN AS THE PULLANGO—AT THE FOOT OF THE WEST ANDES
(ALT. 900 FT.)

(Border of arid and humid divisions of the Tropical Zone.) July, 1919.



PALAMBLA

Looking down on the pueblo (alt. about 4,000 ft.). The barrancas above the town contain subtropical forests; those below, humid tropical forests.

Exposed ridges are arid. October, 1922.

THE BIRD-LIFE OF THE SUBTROPICAL ZONE

As we leave the Tropical and enter the first of the upper life-zones, the scope of our inquiry widens and at the same time becomes more localized. We are dealing now, not with the unknown history of a pre-Andean past, but with the comparatively definite beginning and developments of an Andean and post-Andean age. We ask, therefore, not alone what is the geographic, but also the physical origin of the distinctive zonal forms. The exact line of descent of most tropical species will forever remain unknown to us, but the ancestral types of many subtropical species still exist; and even when the connecting links are lost we may pursue our investigation with some hope of tracing a species to its source.

So far as its composition is concerned, it is probable that our knowledge of the bird-life of the western Subtropical Zone in Ecuador is reasonably complete. The work of native collectors has made certain places, like Gualea, Nanegal, and Mindo, classic localities in Andean ornithology. In southwestern Ecuador we have only the results of our own expeditions.

The life of the eastern Subtropical Zone is less well known than that of the western, but it is not likely that what remains unknown would materially alter the general facies of our existing information. It should be remembered that neither the western nor eastern sections of the Subtropical Zone in Ecuador are distinct faunal units. Both are closely related to corresponding divisions of this zone in Colombia, whence our data may be used to supplement or confirm that which we have acquired in Ecuador.

It should be understood that the bird-life of the Subtropical Zone in Ecuador is not composed only of the species which distinguish it. There are numbers of wide-ranging forms which occur from the Tropical to the Temperate or even the Paramo Zone, and still more which range from the Tropical to the Subtropical. None of these, however, is classified as distinctively subtropical, the lists of subtropical forms being restricted to those which are wholly or largely confined to their zone. Some may range above it into the Temperate, but few birds that occur below what is believed to be the limits of the Subtropical Zone are listed as characteristic of that zone.

Following the method adopted in our study of the Tropical Zone, we may now proceed to a distributional analysis of the distinctive forms of the Subtropical Zone.

We ask, how many genera, species, and subspecies are allotted to this

zone? What are the resemblances and differences between the bird-life of its eastern and western divisions? How may they be explained? How do they compare in extent with those between the corresponding divisions of the Tropical Zone? What are the relations of the Subtropical Zone of Ecuador to the subtropical areas to the north and to the south? Following this objective presentation of data, we may attempt to discuss the origin of subtropical bird-life.

Distributional Analysis of Subtropical Genera

Total Number	141
Common to both eastern and western Ecuador	116
Per cent of total	.81
Eastern	131
Western	121
Per cent of eastern of total	.93
Per cent of western of total	.86
Recorded from eastern but not from western Ecuador	19
Recorded from western but not from eastern Ecuador	7
Distinctively subtropical	46

Distributional Analysis of the Distinctively Subtropical Species

Total species and subspecies	272
Eastern	224
Western	221
Per cent of eastern of total	.82
Per cent of western of total	.81
Recorded from eastern but not from western Ecuador	52
Per cent of total	.20
Per cent of eastern	.23
Recorded from western but not from eastern Ecuador	46
Per cent of total	.18
Per cent of western	.21
Recorded from both eastern and western Ecuador	125
As the same form	81
As different subspecies of the same form	35
As representative species	9
Total	125

After completing the distributional analysis of Ecuadorean subtropical bird-life presented herewith, I found that so far as species and representative forms are concerned, the results show remarkable agreement with those obtained for Colombia. Thus, 230 species, of which 121 are common to both eastern and western divisions, were allotted to the Subtropical Zone in Colombia, while the corresponding figures for

Ecuador are 222 and 125! This resemblance, however, should not be interpreted too literally. Our work in Colombia had no background of experience and was based largely on our own collections. Each country has certain elements not found in the other, and the results given above are not strictly comparable. Nevertheless, they have, I believe, a very real significance. That the subtropical life of Ecuador, a smaller country with but one mountain range and hence, so to speak, two subtropical areas, should (after making due allowances) so closely approach in numbers that of Colombia, a larger country with three mountain ranges and six subtropical areas, is an impressive indication of the essential unity of subtropical life.

This indication assumes the force of a demonstration when we discover that of the 272 species and subspecies accredited to the Subtropical Zone in Ecuador, 224, or 82 per cent, are recorded from the eastern division, and 221, or 81 per cent, from the western division.

Compare this result with the corresponding figures for the Tropical Zone, and we find that in place of substantial accord we have pronounced disagreement:

Subtropical Zone—	
Percentage of species and subspecies to total, eastern	.82
Percentage of species and subspecies to total, western	.81
Tropical Zone—	
Percentage of species and subspecies to total, eastern	.69
Percentage of species and subspecies to total, western	.46

Further to illustrate the relative abundance of forms found on one side of the Andes but not on the other in the two zones and the percentage of forms common to both sides in the Subtropical and Tropical Zones, I present the following:

Subtropical Zone—	
Peculiar to the eastern division	51
Peculiar to the western division	48
Tropical Zone—	
Peculiar to the eastern division	330
Peculiar to the western division	135
Subtropical Zone—Percentage common to both sides	.55
Tropical Zone—Percentage common to both sides	.36

It is obvious therefore, that comparison of the life of the eastern and western divisions of the Subtropical Zone does not reveal those differences in composition and numbers which distinguish the corresponding divisions of the Tropical Zone. Hence we may assume: (1) That so far as

the origin of subtropical life is concerned, there is now no close relation between contiguous parts of the Subtropical and Tropical Zones. If there were, we should expect to see the marked differences between the eastern and western divisions of the Tropical Zone in Ecuador reflected in the adjoining portions of the Subtropical Zone. (2) That the subtropical fauna was largely developed when the zone occupied the summits and contiguous slopes and was thus accessible to the Tropical Zone on both sides.

If this be true, it follows that existing differences in the life of the two divisions of the zone must have developed since they were effectively separated. What is the nature of these differences?

The Bird-Life of the Eastern Division—Let us first examine the 52 species recorded from eastern subtropical Ecuador which are unknown from western subtropical Ecuador. They may be allotted as follows:

Restricted to eastern Ecuador	5
Occurring throughout the greater part of the subtropics	16
Occurring south but not north of Ecuador	8
Occurring north but not south of Ecuador	22
Occurring in western Colombia but unknown from western Ecuador . .	16

Two of the small number of endemic forms (*Oreopeleia erythropareia* and *Thamnocharis dignissima*) are so highly localized that they are known from but one locality each.

The 16 wide-ranging birds are for the most part found from Bolivia to Venezuela. The 8 birds from the south are Peruvian (and in some cases Bolivian) species. This number is to be compared with the 22 Colombian (and in some cases Venezuelan) species as indicating that the Colombian element is greater in eastern Ecuador than the Peruvian.

Of the 16 species found in eastern Ecuador and western Colombia, but unknown from western Ecuador, 6 are wide-ranging and 10 are found only north of Ecuador. This type of distribution represents a condition the exact reverse of the one we should expect to find. That is, we should not be surprised to learn that certain birds common to the Subtropical Zone in western Colombia and western Ecuador were wanting in eastern Ecuador. Furthermore, our knowledge of west Ecuadorean bird-life is too complete to warrant the belief that all these birds occur there but have not as yet been taken. Possibly this may be true of some of them, but species like *Aburria aburri*, *Andigena nigristrois*, *Aulacorhynchus albigitta*, *Momotus æquatorialis*, *Xiphorhynchus triangularis*, *Conopias cinchoneti*, *Empidochanes pæcilurus*, *Myiarchus cephalotes*, *Cinnicerthia olivascens*, *Archiplanus leucorhamphus*, and *Xanthoura*

yncas are usually not overlooked. All are more or less common, some even abundant, and I know of no existing influences which should prevent their entrance into western Ecuador.

It is, however, significant that an essentially similar type of distribution exists in the humid Tropical Zone, where we have found, for example, that *Selenidera*, *Jacamerops*, *Rhopoterpe*, *Deconychura*, and other Amazonian genera reach Central America but are unknown in western Ecuador. I have suggested that the phenomenon may be due to the northward extension of their range from Amazonia through



FIG. 12. Range of *Andigena nigrirostris*, representing a group of 16 subtropical species found in eastern Ecuador and western Colombia but not in western Ecuador.

1. *Andigena nigrirostris spilorrhynchus*
2. *Andigena nigrirostris nigrirostris*
3. *Andigena nigrirostris occidentalis*

Colombia after the greater elevation of the Andes in Ecuador had effectively isolated western Ecuador from Amazonia; while I confess that I do not see that this explanation throws any light on the conditions we have found in the Subtropical Zone, nevertheless the similarity in the cases of the two zones is so striking that it is possible both may have had a similar origin. Attention, however, should be called to the fact that in at least two instances (*Momotus* and *Xanthoura*) the subtropical bird is apparently of northern origin!

The Bird-Life of the Western Division.—Of the 46 subtropical forms found in western but not in eastern Ecuador, 11, including 4 Hummingbirds, and 2 *Atlapetes*, were doubtless derived from Peru and are endemic. One, *Buarremon inornatus*, confined to the Chimbo-Chanchan Valleys, is a mutational form of *B. brunneinuchus*. Three only can be classed as wide-ranging (that is, found both to the north and south of Ecuador), and, possibly, further collecting in eastern Ecuador may reduce this number. It includes *Basileuterus bivittatus chlorophrys*, *Atlapetes tricolor crassus*, and *Tangara labradorides*, the distribution of which is given beyond in the body of the work.

Twenty species are found also in Colombia, most of them being restricted to western Colombia. Here belong *Haploptila castanea*, *Alcotopterus deliciosus*, *Automolus ignobilis*, *Chlorochrysa phaenicotis*, *Compsocoma notabilis*, and *Oreothraupis arremonops*, all strongly marked species, the first two and the last being the sole members of their respective genera.

From western Colombia apparently come *Siptornis erythropis*, *Margarornis stellata*, *Tangara icterocephala*, all with marked Costa Rican affinities, and *Bangsia edwardsi* of a group ranging only from Costa Rica to western Ecuador. These constitute the only Central American element in the Subtropical Zone of Ecuador not present in both eastern as well as western Ecuador. It is evident, therefore, that unlike the western Tropical Zone, which, as we have seen, evidently received many accessions from Central America after it was separated from the eastern division of the zone, the western Subtropical Zone has received but few species, evidence that the Panama subtropical bridge¹ disappeared soon after the Subtropical Zone was separated into eastern and western divisions.

The Bird-Life of the Peruvian Extension of the Western Division.—The distinctive Peruvian element in the western Subtropical Zone is supplied by the southward extension of this zone into northwestern Peru.

¹ Bull. Am. Mus. Nat. Hist., XXXVI, 1917, p. 151.

Although small, it is strongly marked, and in its composition reflects the semi-arid character of its habitat. It partakes, indeed, more of the nature of an Equatorial Arid element, and possibly should be accredited to that fauna. It is found, however, at subtropical elevations where alone, on this part of the Pacific slope, there is sufficient rainfall to produce the vegetation these birds require. I place the following eleven species in this group:

Helianthus viola, *Myrmoderas griseiceps*, *Thamnophilus zarumæ*, *Grallaria watkinsi*, *Hylocryptus erythrocephalus*, *Automolus ruficollis*, *Xiphocolaptes crassirostris*, *Basileuterus trifasciatus nitidior*, *Atlapetes spodionotus comptus*, *A. leucopterus*, *A. dresseri* (*A. simonsi* and *A. celicæ* faunally also belong here).

Myrmoderas griseiceps and *Thamnophilus zarumæ* are specifically distinct representatives of the Amazonian *M. atrothorax* and *T. radiatus* respectively, which have evidently reached northwestern Peru by way of the Marañon, since neither is known elsewhere on the Pacific coast. *Grallaria watkinsi* and the true dendrocolaptids are all strongly marked species, *Hylocryptus* being an endemic genus. The five *Atlapetes* seem to be the special products of the scrubby growths of the region, two of which (*comptus* and *leucopterus*) have penetrated far into Ecuador.

*Remarks on the Origin of Subtropical Bird-Life.*¹—The subtropical life of Ecuador includes forms which arose from approximately below and others which came from varying distances to the south or north. Each case calls for its own species investigation, and we can hope for success in tracing a species to its source only when we are assisted by related sciences and by all the information which specimens, familiarity with the country whence they came, and with the habitat requirements of the species they represent, can give us. When we have the results of such studies covering the fauna we shall be in a position to contribute more effectively to the history of its development. Meanwhile, we may venture to summarize and discuss the information now available.

We have seen that the close resemblance between the bird-life of now widely separated divisions of the Subtropical Zone leads to the conclusion that this life was largely acquired and evolved when the zone occupied the summit of the Andes. Let us attempt to picture its growth from that period. Of one thing we may be sure; that is, that subtropical life was derived from forested regions. Range extension is primarily dependent upon habitat requirement. We do not look for Larks in forests any more than we expect to find Trogons on savannas.

¹ See also the more general discussion of the origin of zonal faunas beyond.

If our interpretation of the facts in relation to the tropical bird-life of Ecuador is correct, humid forests existed at both the eastern and at least northwestern base of the Ecuadorean Andes and on their slopes when they reached subtropical altitudes. Here, then, was the nearest available source from which the subtropical forests might draw their life. But, we inquire, were there no sea-level subtropical forests, the life of which would be more at home in Andean subtropical levels than that of the nearer but climatically far more different Tropical Zone? The Rhea of the Temperate Zone on the Bolivian tableland, for example, was not derived from the form living at the base of the mountains, but from that inhabiting the south Temperate Zone in Patagonia. Did arms of the Equatorial Andes extend, therefore, to forests in subtropical latitudes? The extent of the Subtropical Zone in the early stages of its history we do not know, but in South America it does not today reach sea-level. As a belt of 'mountain rain' forest, it evidently requires a certain altitude for its full development. At the south, therefore, the Subtropical Zone ends on the Amazonian slopes of the Bolivian Andes where it is succeeded by an arid mountain region, while the forests at the base are those of the Tropical Zone.

It is not until we reach southeastern Brazil, eastern Paraguay, and the intervening province of Misiones, Argentina, that we shall find subtropical forests approaching sea-level. This region is pre-Andean, and we may ask whether it has contributed to Andean life. The two regions are now widely separated by a savanna or campo territory with tree-growth only along the margins of water-courses or in disconnected stands. It does not seem probable that under existing conditions the Andes have received life from southeastern Brazil. Nevertheless, the fact that two genera (*Pyroderus* and *Scytalopus*) common to them both are wanting in the intervening territory suggests that they were at one time more closely associated than they are now. It seems more than probable, for example, that the races of *Pyroderus* now found in the Andean subtropical have descended from *Pyroderus scutatus* of the southeastern Brazil region. *Scytalopus* offers a somewhat similar case. While this source of life is not, therefore, to be overlooked, it seems to have contributed but little to the Andean fauna.

To discover a northern subtropical forest connection, we shall have to go far as northeastern Mexico, but, in spite of the distance, the evidence strongly indicates that at least *Compsothlypis*¹ and *Xanthoura* were derived from that region. Other forms of evident northern, if not

¹ *The Auk*, XLII, 1925, pp. 193-208.

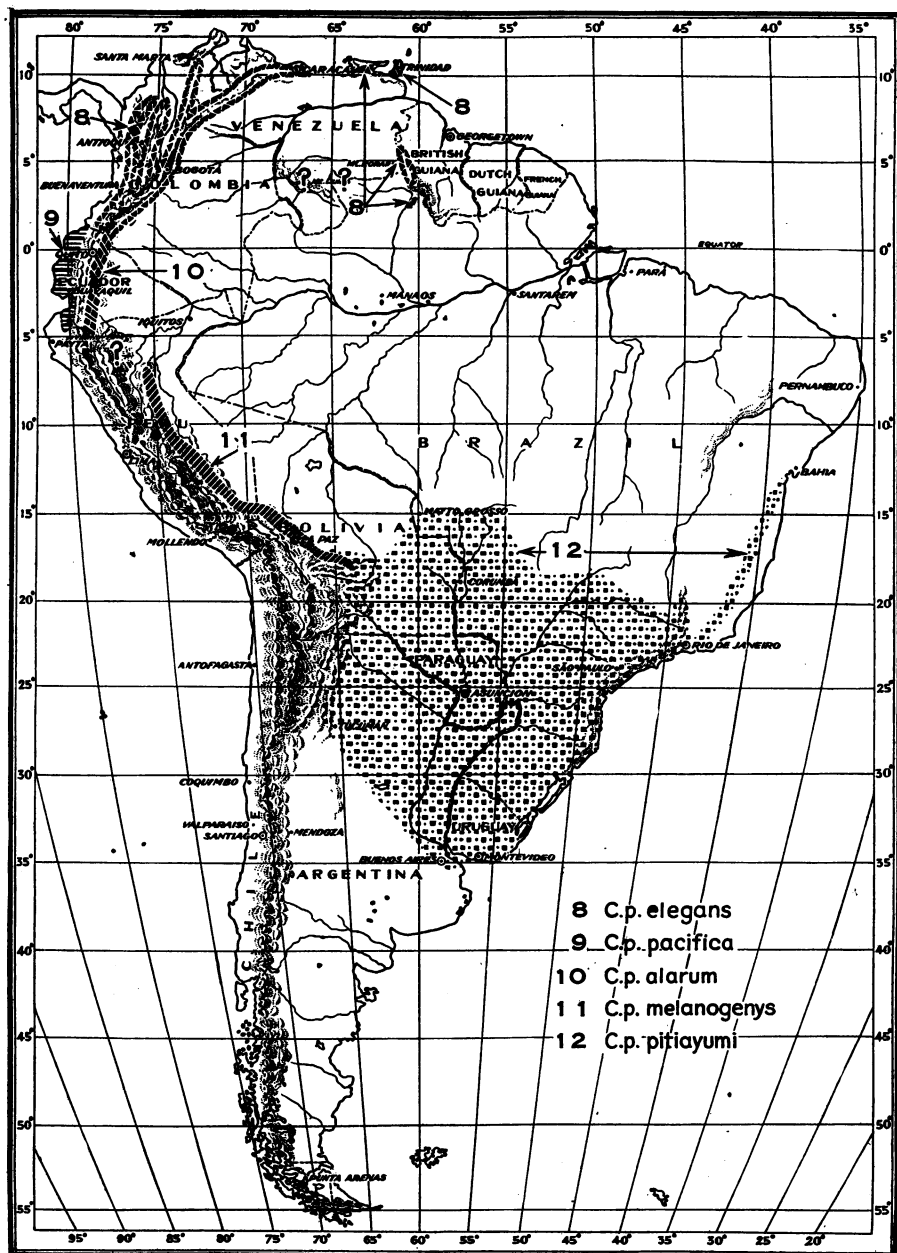


FIG. 13. Distribution of *Comptosylaxis pitiayumi* in South America, a species of apparent northern origin which ranges from Texas to Uruguay, through the Subtropical Zone. (From *The Auk*. Vol. XLII, 1925, p. 202.)

of sea-level subtropical origin, are *Veniliornis oleaginus*, *Momotus æquatorialis*¹, *Cinclus leuconotus*, *Pheucticus chrysopheplus*, and *Buarremon brunneinuchus*²; but after making liberal allowance for additions from both south and north there will remain a large number of species which apparently could have been derived only from the tropics. Examples are *Pharomachrus auriceps*, *Eubucco bourcierii*, *Malacoptila fulvicularis*, *Alcotopterus deliciosus*, *Rupicola peruviana*, *Euchlornis riefferi*, and *Iridophanes pulcherrima*.

One of the distinctive characteristics of the bird-life of the Subtropical Zone is the extended range of many of the species inhabiting it. Species after species is found from Venezuela to Bolivia; a number are distributed from Central America (excluding the Panama 'Fault') to Bolivia, and, in several instances, *Buarremon brunneinuchus*, for example, from Mexico to Bolivia. The range of this species illustrates the type of distribution which creates the striking uniformity that characterizes the subtropical life. In a sense, it may be said to occupy an area 5,000 miles long and a mile wide!—the actual width of the some 5,000 feet stratum of the Subtropical Zone depending, of course, on the angle of the slope on which it lies.

Doubtless, in all ornithology there is not a more impressive demonstration of the potency of those environmental influences which collectively determine the boundaries of faunal areas. Throughout the greater part of its extent this stratum of life is bordered below by the forests of the Tropical Zone, and in many places it is bordered above by the forests of the humid Temperate Zone; but from neither one nor the other have we records of *Buarremon brunneinuchus*, and this surprisingly close adherence to narrow faunal limits is characteristic of most subtropical species. *Buarremon brunneinuchus* evidently originated in Mexico, but even assuming that its ancestors existed throughout the Tropical Zone, it is not conceivable that from Mexico to Bolivia they would independently give rise to exactly the same form. Such repeated parallelism is unknown. It is, of course, far more probable that this and other far-ranging subtropical forms had a more or less restricted point of origin where their characters were evolved and from which they were subsequently dispersed.

Even where the range of a tropical form parallels that of its subtropical representative, the evidence indicates but one point of origin for the zonal form.

The range of the subtropical *Mionectes striaticollis*, for example,

¹ Bull. Am. Mus. Nat. Hist., XLVIII, 1923, pp. 27-59.

² *Ibid.*, pp. 243-278.

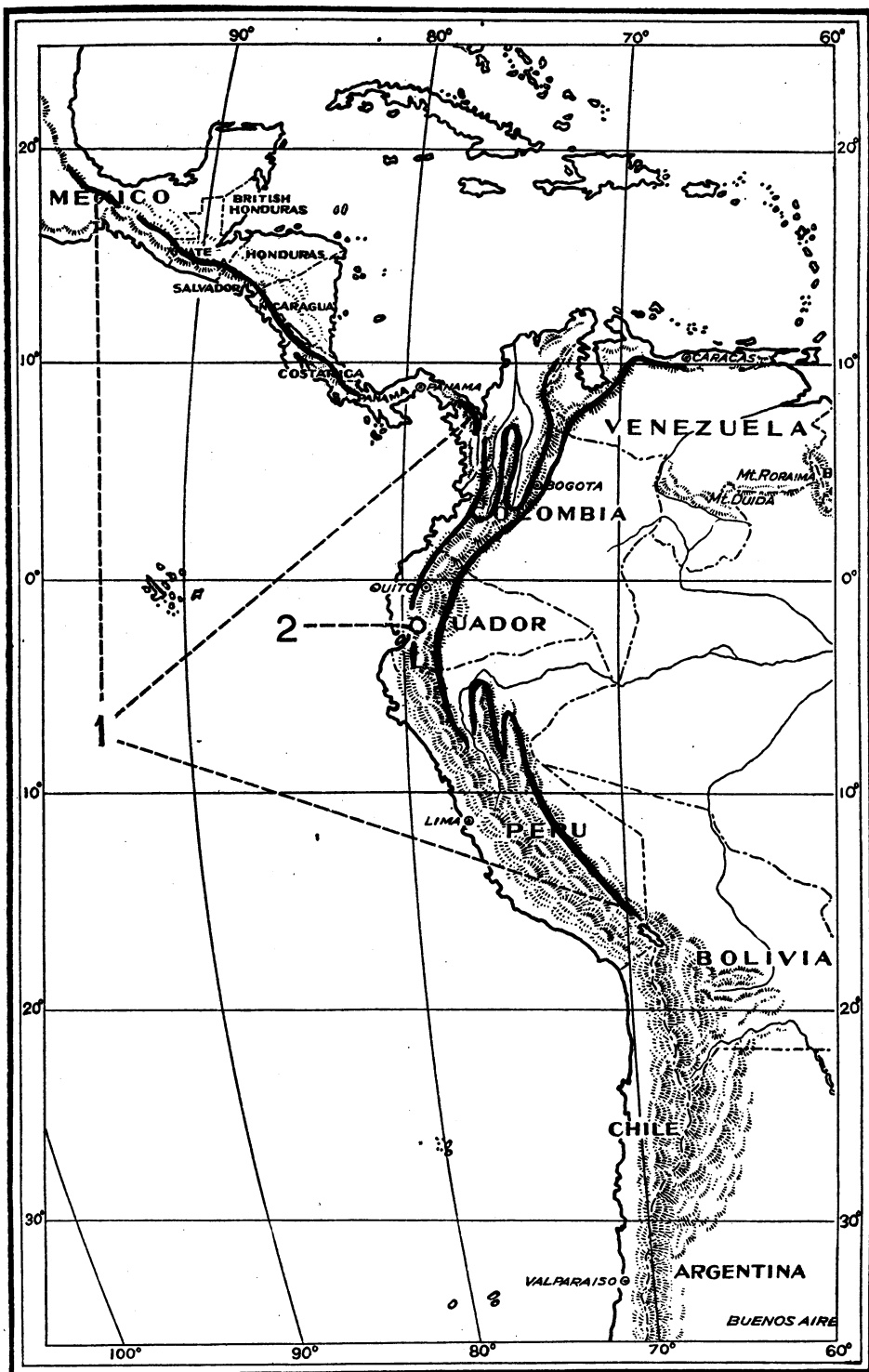


FIG. 14. Distribution of *Buarremon brunneinuchus* and *B. inornatus*, to illustrate the extreme development of the range of a Subtropical species and its apparent mutational variation in an isolated mountain valley of Ecuador. (From Bull. Amer. Mus. Nat. Hist., XLVIII, 1923, p. 247.)

1. Range of *Buarremon brunneinuchus* in the Subtropical Zone from Mexico to southern Peru.
2. Range of *Buarremon inornatus* in the Chimbo Valley of western Ecuador.

extends from Bolivia to Colombia and western Ecuador, and except in Bolivia it is bordered by that of its apparent tropical ancestor, *Mionectes olivaceus*. Several races of each species are recognized, but the geographic variations of *striaticollis* in no sense reflect those of *olivaceus*. In other words, having once separated from *olivaceus* (assuming that such separation occurred), the subsequent range extension of *striaticollis*, with its accompanying geographic variation, has evidently been wholly independent of the ancestral type

The changes in the life of the Subtropical Zone, which are believed in large part to have occurred since continued elevation separated it into eastern and western divisions, have been mentioned in our analysis of subtropical bird-life. It is in this post-separation period, as we may call it, that we should look for more recent additions to subtropical life,

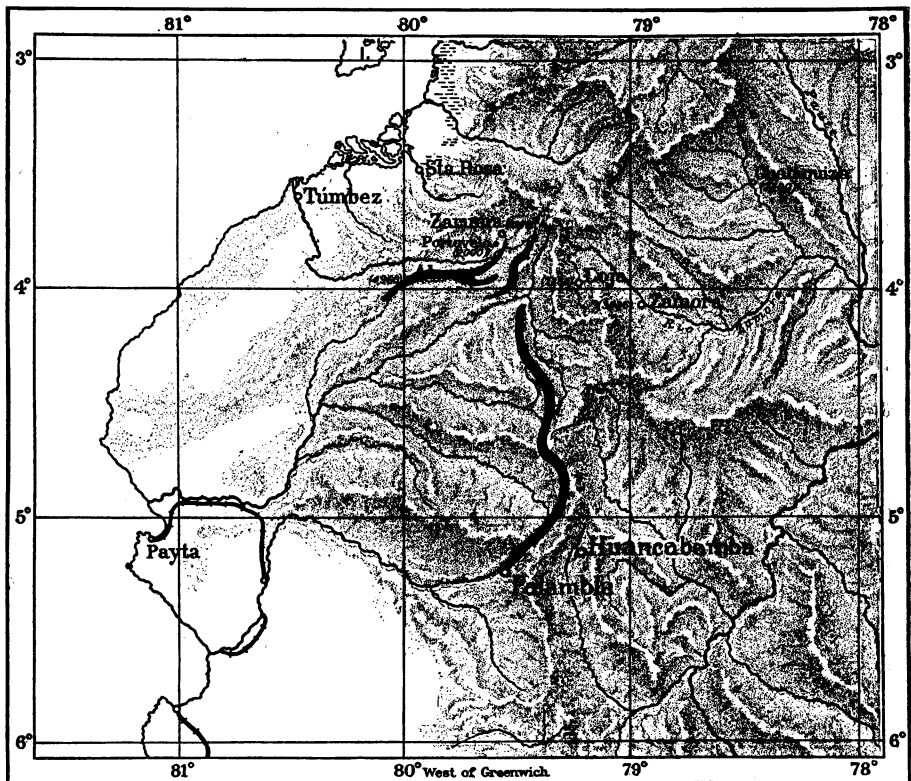


FIG. 15. Distribution of *Thamnophilus zarumae*, a species of the Peruvian extension of the Subtropical zone which appears to have originated from *Thamnophilus radiatus* of the Marañón valley and Amazonia.

including those, if any, now in process of evolution. Examination of what we believe to be the life of this period indicates that evolution has occurred within the zone, 35 species being represented by different races and 10 by close allies in each division of the zone in Ecuador. But these birds are the products of the zone, not new additions to it. Presumably, the zone developed so slowly that the demand for space was always in excess of the supply, and the narrow belt of new territory early received all the population it could support. The Subtropical Zone, therefore, apparently contains no recently acquired forms. In the west Peruvian extension of the zone, however, we have discovered two zonal representatives of tropical forms (*Thamnophilus zarumæ* and *Mymoderas griseiceps*) which must have entered this region at a comparatively recent date. Clearly derived from Amazonian ancestors, they nevertheless have become sufficiently differentiated to rank as species. The boundaries of the Tropical Zone, as we have seen, reach high levels in this region, and having crossed the western Andes, the ancestors of these birds seem to have descended to the belt of vegetation on the Pacific slope which their habits require. Beyond this their progress to lower levels has been stopped by the aridity of the coastal belt, and their range extension has been thence northward.

Finally, a fresh comparison of the life of the two divisions of the Subtropical Zone in Ecuador shows that their resemblances are so much stronger than their differences, and that racial variation in species common to both divisions is so limited that we ask whether the pre-separation period was not much longer than the post-separation period.

SUMMARY AND CONCLUSIONS

1. The Subtropical Zone is the zone of 'mountain rain' forest; in default of sufficient rainfall the zone and its fauna are lacking.

2. In the early stages of its development, the Subtropical Zone occupied the summit of the Andes.

3. Subsequent elevation separated it into eastern and western divisions which in Ecuador now have no connection.

4. The eastern division is closely related to the Subtropical Zone of the eastern Andes and eastern slope of the Central Andes of Colombia, and has also strong affinities with the western Andes of Colombia. It extends from 3,500 to 5,000 feet upward to the Temperate Zone.

5. The western division is related to that of the western Andes of Colombia, but lacks 16 species of that zone which occur in the eastern division. A strongly characterized arm of the western division extends

into northwestern Peru. Under the influence of the Humboldt Current, the lower level of the western division may be only 1,000 feet above sea-level.

6. The habitats of the Subtropical Zone, while all contained within forests, are sufficiently varied to support a rich fauna. The eastern division contains 11 species of a single genus and the western 10, a condition not equaled in the Tropical Zone in Ecuador.

7. The 222 species of the Subtropical Zone of Ecuador represent 142 genera; 46 of the latter are distinctively subtropical.

8. A distributional analysis shows the pronounced uniformity of subtropical life, from which it is concluded (a) that there is now no close relation between contiguous parts of the Subtropical and Tropical Zones, and (b) that the subtropical avifauna was largely developed before the zone was separated; hence it is assumed (c) that the differences in the life of the two divisions have in the main developed in the post-separation period.

9. The eastern division has 19 genera and 51 species not found in the western, including 16 west Colombian species which are unknown in western Ecuador.

10. The western division has 7 genera and 46 species not found in the eastern, including 11 restricted to the Peruvian extension. The absence from the western division of a Central American element corresponding to that in the western Tropical Zone indicates that the Panama subtropical bridge disappeared before or soon after eastern and western divisions of the Subtropical Zone were separated.

11. Subtropical life was derived from other forested areas. A limited amount has come from subtropical regions to the south and north, but by far the greater part has come from the tropics.

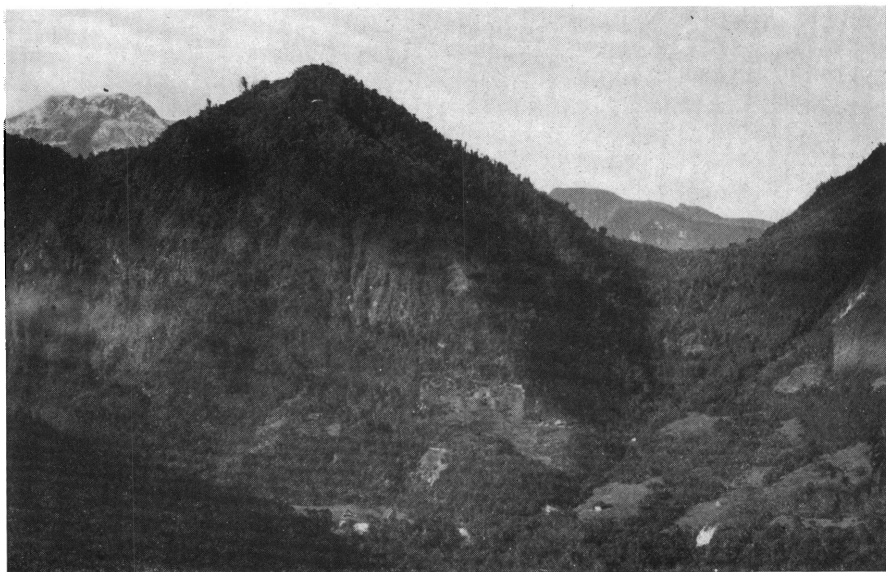
12. Subtropical species are believed to have had a restricted place of origin from which they have spread through the zone.

13. Zonal resemblances are so much stronger than differences; differentiation among species common to both zones is so slight that the pre-separation, seems to have been of longer duration than the post-separation period.



THE GUAILLABAMBA CANON FROM THE MOJANDA MOUNTAINS (ALT. 10,000 FT.)

Note the presence of forest in the foreground, its absence elsewhere.
(Humid Temperate Zone looking into arid Temperate Zone.) August, 1922.



VERDECOCHA, BELOW THE WESTERN FOOT OF PICHINCHA (ALT. 9,400 FT.)

The Museum camp is a white dot among the trees in the valley at the right.
The Rio Mindo lies on the other side of the wooded ridge beyond.
(Junction of Subtropical and humid Temperate Zones.) September, 1922.

THE TEMPERATE ZONE

Boundaries, Characteristics, and Habitats

The Humid Division

The Arid Division

Habitats of the Temperate Zone

The Bird-Life of the Temperate Zone

Bird-Life of the Humid Division

Bird-Life of the Arid Division

The Origin of Temperate Zone Bird-Life

Summary and Conclusions

THE TEMPERATE ZONE

BOUNDARIES, CHARACTERISTICS, AND HABITATS

Generally speaking, the Temperate Zone lies between the altitudes of 9,000 and 12,000 feet. Like the western part of the Tropical Zone, it has a humid and an arid division. The former lies chiefly on the outer wooded mountain slopes, the latter on the treeless inner slopes and inter-andine valleys or tableland. Where the transverse ranges, or 'nudos,' connecting the eastern and western summits of the Andes receive sufficient rainfall to produce forest-growth, they belong in the humid Temperate Zone. When mountainsides are cut by valleys like the Chanchan, which support only a semi-arid tree-growth, or cañons like the Guailabamba which are utterly barren, they belong in the arid Temperate Zone. The amount of rainfall, therefore, is the determining factor in the boundaries of the two divisions of the Temperate Zone, and this is locally controlled by slope exposure, direction of the wind, comparative temperatures, and altitude in relation to that of windward mountains.

Standing on the southwestern slopes of the transverse Mojanda range, above Malchingui, a broad expanse of country is visible. Bare and forested slopes lie side by side, and barren summits alternate with forested ones. Only a minute knowledge of the topography and meteorology of the country, of air-currents and 'rain-shadows,' can explain the existence of such strongly contrasting conditions. The mere sight of them brings a realization of the magnitude of the task which awaits the zoögeographer who attempts to define Ecuador's life zones in detail.

The two divisions of the Temperate Zone differ as greatly in fauna as they do in flora, and, like the two faunas of the western part of the Tropical Zone, must be treated separately.

The Humid Division of the Temperate Zone.—Although lying mainly on opposite slopes of the Andes, the humid Temperate Zone, unlike the Subtropical, cannot be faunally separated into eastern and western divisions. Its boundaries may be defined as including all forested areas above the subtropics. When, however, we attempt to supply more definite altitudinal limits generalizations must be abandoned. Under normal conditions, the zone, as stated above, lies between approximately 9,000 and 12,000 feet. These altitudes will apply, for example, to the Pacific slopes of Pichincha. Farther south, however, it seems evident that the influences which lower the level of the Subtropical Zone are potent in the Temperate. Most of the 20 species which Fraser collected at Chillanes (alt. 7,686 ft.) on the Cordillera de Chimbo are characteristic of the humid Temperate Zone. At Cochaseca (alt. about 9,000 ft.), above Puente de Chimbo, Tate found the upper limit of the humid Temperate. El Chiral (alt. 5,350 ft.), on the trail from Santa Rosa to Portovelo, while largely subtropical, has a number of Temperate Zone species, and in southern Ecuador *Buarremon assimilis*, elsewhere restricted to the Temperate Zone, becomes subtropical.

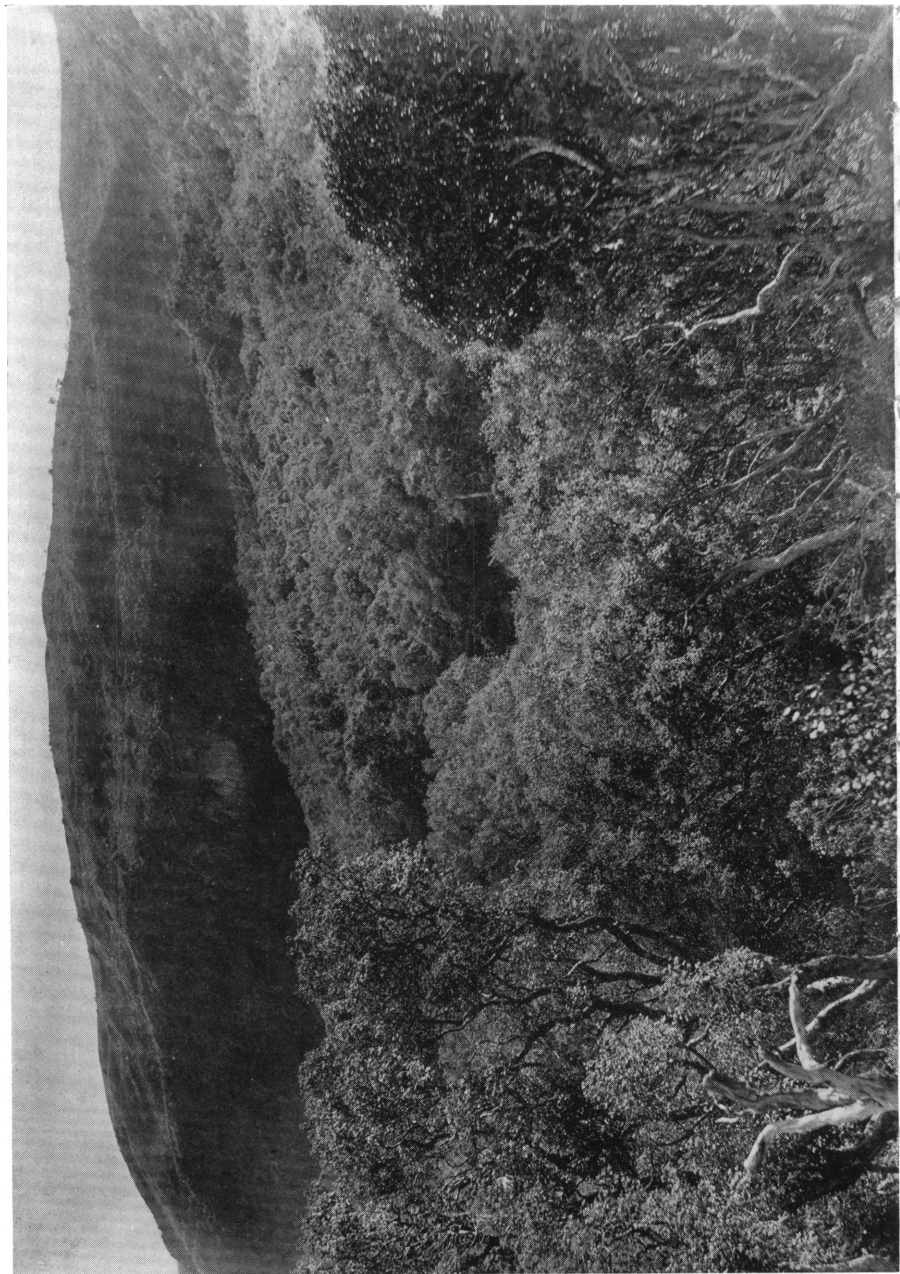
On the Amazonian side, San Rafael, Stolzmann's station on the slopes of Tunguragua at 9,000 feet, is in the humid Temperate; and Spruce¹ tells us of unusually rich forest on the upper slopes of this mountain, doubtless in response to an exceptionally heavy rainfall.

Our knowledge of eastern Ecuador is so largely restricted to the country visible from waterways that we know but little concerning the extension eastward of zonal faunas. On Sumaco, however, the Olallas found not only a subtropical avifauna but a well-developed humid temperate fauna. They sent, however, no Paramo Zone birds, but Capt. G. M. Dyott, who ascended this mountain in 1925, tells me that the upper 1,000 feet is grass-covered and doubtless belongs therefore in the Paramo Zone. From February 1 to 20 the sunrise temperature at the highest point reached by the Olallas averaged 8° C. (46.4° F.), indicating an altitude of not less than 11,000 feet.

Cañons, barrancas, and smaller drainage-areas induce finger-like projections of the humid Temperate to penetrate the arid Temperate, or to creep up into the Paramo Zone with a resulting interdigitation which the most accurate labeling serves only to make more confusing to one not familiar with the 'lay of the land,' a circumstance to which I have before alluded.²

¹ Notes of a Botanist on the Amazon and Andes, II, 1908, p. 178.

² Dist. Bird-Life in Colombia, p. 55; Dist. Bird-Life in the Urubamba Valley, Bull. No. 117, U. S. Nat. Mus., p. 31.



Latitudinally, except where broken by the passage of rivers from the tableland, the humid Temperate Zone, both on the eastern and western sides of the Andes, is essentially continuous in Ecuador. On the Pacific side, however, it is lacking on the outer slopes south of Zaruma but reappears in the range north and west of Huancabamba.

This appears to be the only existing connection between the Temperate Zone portions of Ecuador and Peru. The north Peruvian and south Ecuadorean portion is more arid than humid and, furthermore, appears to be separated from the humid Temperate Zone of the eastern Andes.

Northward, the Temperate Zone appears as detached areas in the western Andes of Colombia. There are also subtropical gaps in the eastern Andes, and the physiographic as well as faunal connection of the humid Temperate Zone of the eastern Andes of Ecuador appears to be with the Central Andes of Colombia.

At its best, a humid temperate forest is composed of fairly tall trees, with many rather small, densely-leaved limbs. The undergrowth is heavy and there is a profusion of mosses and epiphytes. Approaching timber-line, the trees are lower and exhibit a tendency to grow in groups separated by glade-like openings or marshy meadows. Such localities form the most delightful collecting-grounds in the Andes.

The Arid Division of the Temperate Zone.—The aridity of the treeless portions of the Temperate Zone varies from that of valleys with sufficient rainfall to produce pasturage to that of rock-strewn plains where cactus is the prevailing type of vegetation. Generally speaking, the arid Temperate Zone comprises all the unforested areas between 9,000 and 12,000 feet, but where, because of insufficient rainfall, forests of the Subtropical Zone are lacking, the arid Temperate descends considerably lower and may even meet the Tropical Zone.

The entire interandine tableland, and hence the greater part of Ecuador's population and agricultural development, are contained in the arid Temperate Zone. It has, therefore, been more altered by the hand of man than any other part of the republic. Eucalyptus trees now abound throughout its entire extent and in places exist in stands of a score of acres. Trees and bushes border the irrigation ditches. The roadsides are lined with agaves; crops of cereals, corn, and potatoes stretch far over the plains.

It is probable, however, that these changes have added to rather than diminished the bird-life of the region. The plains-loving species find food in the stubble and among the weeds of cultivated fields, while the trees and bushes have attracted some of the birds of the upper humid

Temperate. These conditions, in addition to those due to natural causes, make it difficult always sharply to distinguish between the two divisions of the Temperate Zone.

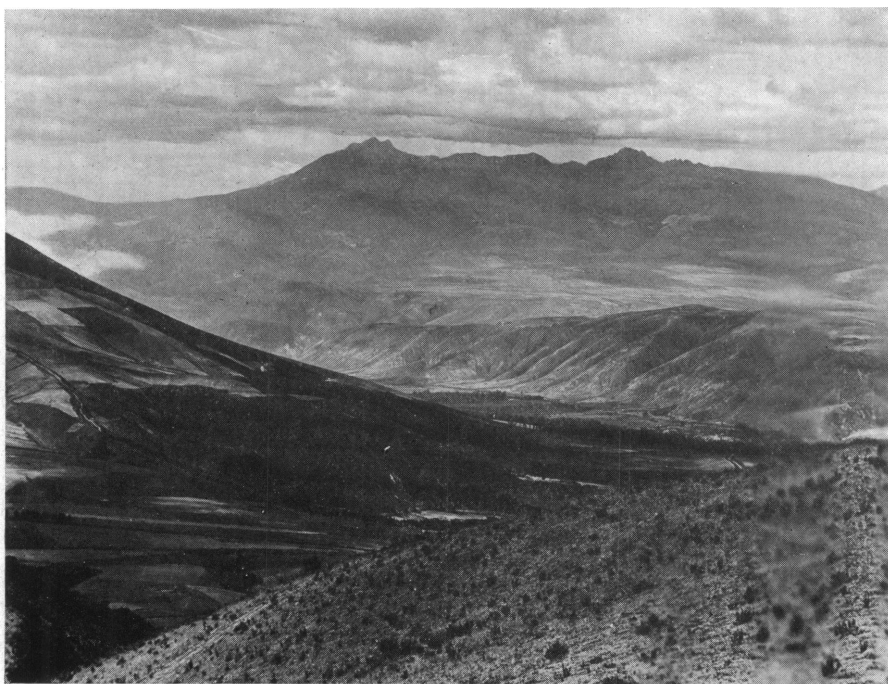
To the north, the arid Temperate Zone extends into southern Colombia, between the Central and western Andes, near Popayán.

In the eastern Andes of Colombia, the arid Temperate Zone is confined largely to the Bogotá Savanna. Here the occurrence of *Fulica americana columbiana*, *Otocoris alpestris peregrina*, and *Sturnella magna meridionalis* indicates the presence of a northern element lacking in Ecuador, while the absence of *Dafila spinicauda*, *Patagona gigas*, *Agriornis solitaria*, *Muscisaxicola maculirostris rufescens*, *Phrygilus alaudinus bipartitus*, and *P. plebejus ocularis* shows the want of a southern element present in Ecuador. On the other hand, the Bogotá Savanna has a race of the South Temperate *Porphyriops melanops* unknown elsewhere in the Andes. To the south the arid Temperate Zone enters Peru through the Loja-Huancabamba region, where the eastern Andes of Ecuador become the western Andes of Peru.

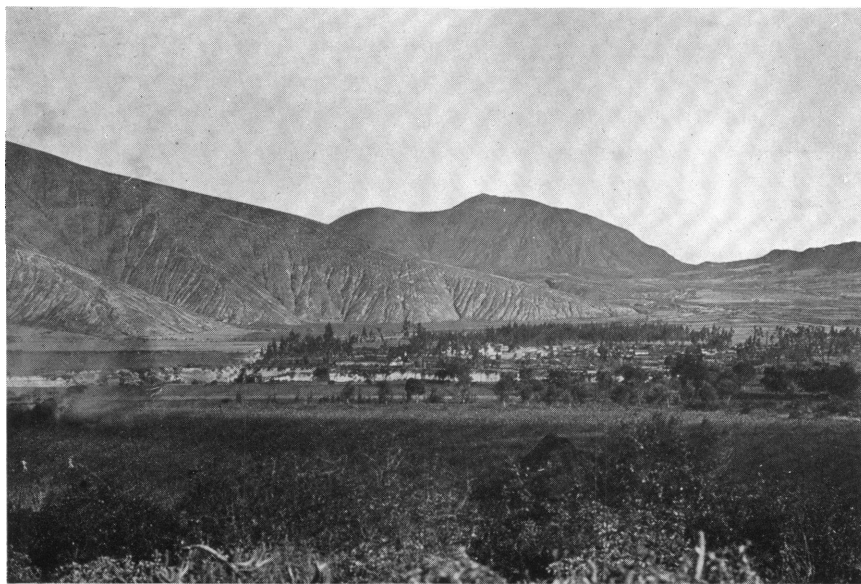
From at least Lake Junin southward, the relation between the arid Temperate and Paramo Zones is confusing. The Peruvian-Bolivian tableland lies at a considerably higher elevation than that of Ecuador. From the Junin region to La Paz, Bolivia, it has an average elevation of over 12,000 feet. This is above the limit of human habitation in Ecuador, nevertheless this elevated region contains no small part of the population of Peru and Bolivia, and is the heart of a rich grazing area, wanting at similar altitudes in Ecuador. I am unable to explain climatic conditions so exactly the reverse of those we should expect to encounter. In writing on the bird-life of the Urubamba region of southern Peru, I found it impossible to distinguish an arid, treeless Temperate Zone from the Paramo Zone. The arid Temperate Zone of my paper on that region, therefore, is the upper arid Temperate Zone of the present paper.

HABITATS OF THE TEMPERATE ZONE

The habitats of the Temperate Zone are: (1) Lower Forest, (2) Upper Forest, (3) Savannas, (4) Rocky, (5) Lacustrine, and (6) Palustrine. The Lower Forest Habitat borders the upper part of the Subtropical Zone. Here the arboreal growth of the humid Temperate reaches its maximum development. Characteristic birds of this habitat are *Penelope montagni*, *Andigena hypoglaucus*, *Trogonurus temperatus*, *Oropezus rufulus*, *Thripadectes flammulatus*, *Grall*



ABOVE COTOCALLAO, LOOKING NORTHWARD TO THE MOJANDA RANGE (ALT. 9,400 FT.)
(Arid Temperate Zone.) August, 1922.



ON THE EQUATOR; SAN ANTONIO IN THE DISTANCE (ALT. 8,200 FT.)
(Arid Temperate Zone.) August, 1922.

laria squamigera, *Euchlornis arcuatus*, *Iridosornis rufivertex*, *Buthraupis cucullata*, and *Cyanolyca turcosa*.

The scattered or bushy growth near timber-line, and the arborescent vegetation which springs up along irrigation ditches form the Upper Forest Habitat. Here are found the Flycatchers of the genus *Ochthæca*, *Mecocerculus*, and *Spizitornis*, *Turdus fuscater*, *Thraupis darwini*, *Conirostrum fraseri* and *C. sitticolor*, *Diglossa aterrima* and *D. lafresnayei*. The more fertile plains, like the Quito Valley, for example, form the Savanna Habitat, the home of the Finches of the genera, *Sicalis*, *Catamenia*, and *Idiospiza*, of *Phrygilus alaudinus* and *P. plebejus*, of the Lapwing (*Ptiloscelys*) and the Pipit (*Anthus*). The cacti and agaves which grow on wholly arid rocky plains (for example, unirrigated parts of the valley north of Pomasqui) attract *Patagona* and other Hummingbirds, and the Sparrow Hawk (*Cerchneis*) is at home here.

In addition to permanent lakes like Colta, near Cajabamba, and San Pablo, near Otavalo, certain marshy areas, like the Carolina Savannas on the outskirts of Quito, become lagoons during the wet season. These are frequented by *Fulica ardesiaca*, *Larus serranus*, *Dafila spinicauda*, *Querquedula cyanoptera*, and in the winter by migrants from North America as well as wanderers from lower latitudes. *Querquedula discors*, *Dendrocygna discolor*, *Nomonyx dominicus*, *Marila affinis*, and *M. erythrophthalma* have all been taken on La Carolina, the last, the only Ecuador record for the species.

The Palustrine Habitat is limited in area and has a correspondingly small avifauna. It includes the marshy borders of lakes and streams, and in the dry season the birds of seasonal lakes (like La Carolina) as well as of the wet meadows near the upper margin of the forested part of the zone. The former is the home of *Rallus virginianus æquatorialis*; the latter is frequented by *Gallinago nobilis*.

THE BIRD-LIFE OF THE TEMPERATE ZONE

If zonal nomenclature were based on the general geographic origin of the forms characterizing a given faunal region, no one name could be employed for what I have here called the Temperate Zone. It would indeed be difficult to find two groups of birds more unlike in their physical and geographic origin than those which respectively distinguish the humid and arid divisions of the Temperate Zone.

In the humid Temperate are found representatives of the Tinamous, Guans, Trogons, Toucans, Grallarias, Woodhewers, Cotingas, Wrens, Tanagers, and Warblers, not one species of which inhabits the arid

Temperate; in the latter are found several water-birds, Flycatchers, a Pipit, and Finches unknown in the humid Temperate.

In brief, the fauna of the humid Temperate is arboreal and is largely derived from the Subtropical Zone; the fauna of the arid Temperate is terrestrial and is largely derived from South Temperate regions. Both in geographic and physical origin, the life of the arid Temperate is indeed more closely allied to that of the Paramo Zone than it is to that of the humid Temperate. The question may well, therefore, be asked, why not consider it a division of the Paramo rather than of the Temperate Zone? The boundaries of faunal areas are not, however, primarily determined by either the structural or geographic affinities of the organisms inhabiting them, but by the adaptability of those organisms to the forces which collectively create their environment. I am writing in southern Florida. The climate is semi-tropical, and, in spite of the absence of a land connection, the flora which has established itself here is mainly of tropical origin. But there is also a northern element. Looking from my window, I see a pine forest; but is that any reason why we should recognize both an austral and a boreal zone here? So, in the Temperate Zone of Ecuador, we find forms from widely separated geographic sources living in the same faunal area because within this area they find conditions favorable to their existence.

The arid Temperate plains are connected with South Temperate plains and have, in large part, acquired their life from them. If the humid Temperate forests were, or had been, connected with either South Temperate or North Temperate forests, I believe that they would have derived their life from them. In the absence of such connection, they have acquired their life from the Subtropical and Tropical Zones, the only other available forested areas.

Furthermore, although conditions in the much higher interandine region of Peru and Bolivia produce a fusion of arid Temperate and Paramo bird-life, it must be remembered that the divisional distribution shown by the birds of these zones in Ecuador is maintained by numbers of species as far south, at least, as central Chile. That is, the Paramo and arid Temperate birds of Ecuador are the Paramo and arid Temperate birds of Chile. For example, *Circus cinereus*, *Buteo erythronotus*, *Cerchneis sparveria*, *Speotyto cunicularia*, *Patagona gigas*, *Sicalis luteiventris*, and *Phrygilus alaudinus* are all characteristic species of the lower of Chile's two life-zones, while *Tinamotis pentlandi*, *Metriopelia*, *Attagis*, *Sarcorhamphus*, *Oreotrochilus*, *Upucerthia*, *Muscisaxicola*, and *Phrygilus unicolor* are common to the Paramo of Ecuador and Chile. Most of these birds reach sea-level in Patagonia. It appears, therefore,

that upper or Paramo birds have, as might be expected, a more southern origin than those of the Temperate Zone.

The Bird-Life of the Humid Division of the Temperate Zone.—I have expressed my belief that the uniformity of subtropical life is due to its development while the zone occupied the summit of the Andes. An analysis of the life of the humid Temperate should test the accuracy of this statement. While, as we have seen, the Temperate Zone forests on opposite Andean slopes are not actually connected, as we can imagine the Subtropical forests to have been, the arid Temperate and Paramo Zones intervening, they nevertheless are joined by the Temperate Zone forests of the transverse ranges, or 'nudos,' which, at intervals, cross the great interandine valley. That this connection is sufficient to permit of an interchange of life, producing an essentially uniform zonal fauna, is shown by the following figures: I allot 98 species of 64 genera to the humid Temperate Zone in Ecuador. Of these no less than 81 species and 57 genera are common to both sides of the range. The east side has 10 species and 4 genera as yet unknown on the west; the west side has 6 species and 3 genera unrecorded from the east. Of the 81 species common to both sides, only 9 are divisionally represented by subspecies. Besides demonstrating that the bird-life of the eastern and western divisions of the humid Temperate Zone is so alike that these divisions form but a single faunal area, comparison of these figures with those obtained for the Subtropical Zone suggests some interesting conclusions. We note, first, that the relation of the number of species to the number of genera is almost the same in both zones; that is, approximately 1.6 species to the genus in the subtropics, and 1.5 to the genus in the humid Temperate. The proportion of genera common to both sides is also nearly alike, 81 per cent in the subtropics, 89 per cent in the Temperate Zone, the difference, as might be expected, being in favor of the newer zone.

It is not until we come to what we consider the post-separation changes in the Subtropical Zone that we find a marked difference when comparing our distributional analysis of the Subtropical and humid Temperate Zone faunas. Thus, it will be observed that only 9 per cent of the total humid Temperate fauna is recorded from eastern, but not western, Ecuador, and only 5 per cent from western, but not eastern Ecuador; while the corresponding figures for the subtropics are 20 and 18 per cent. Again, 76 per cent of the whole humid Temperate Zone fauna is recorded from both the eastern and western sides of the Andes, either as identical species or representative races or species, while only 45 per cent of the Subtropical fauna is similarly distributed.

These figures show not only the uniformity of the humid Temperate Zone fauna in Ecuador, but also give some conception of the extent of the changes which have occurred in the subtropics in the post-separation period.

The fact that in its wooded areas Ecuador is more closely connected with the region to the north, rather than to the region south of it, is strongly reflected in the geographic affinities of its humid Temperate Zone bird-life. Thus, while only 5 species are found from Ecuador southward, 28 are found from Ecuador northward. The surprisingly close relation between the subtropic avifauna of eastern Ecuador and western Colombia, to the exclusion of western Ecuador, is not shown so pronouncedly by the birds of the Temperate Zone. *Lathria fuscocinerea* and *Cnemoscopus rubrirostris*, however, are found in eastern but not western Ecuador, and also on all three Andean ranges in Colombia. It is clear that the relations of the humid Temperate bird-life of eastern Ecuador are with the Central rather than the eastern Andes of Colombia. *Cinnicerthia unibrunnea* and *Atlapetes pallidinuchus papallactæ* are common to eastern Ecuador and the Central Andes, but are represented in the eastern Andes of Colombia by *Cinnicerthia unirufa* and *Atlapetes pallidinuchus pallidinuchus*, respectively.

In spite of the fact that the area occupied by the humid Temperate Zone is far less continuous than that in which the Subtropical Zone lies, a large proportion of its avifauna is widely distributed. Thus, for example, 19 species range from Bolivia to Colombia, and 7 of these reach Venezuela. Twenty-two additional species range from central or southeastern Peru to Colombia, and 10 of these continue to Venezuela.

List of Birds which Characterize the Humid Division of the Temperate Zone

Nothocercus julius	Diphogena iris iris
Penelope montagni montagni ¹	Lafresnayeia gayi
" " brooki ²	Ensifera ensifera
Merganetta columbiana	Pterophanes cyanopterus
Ciccaba albogularis	Aglæactis cupreipennis cupreipennis
" albitarsus	" " parvula ³
Glaucidium jardini	Boissonneaua flavescens tinoclora
Leptosittaca branicki ³	Vestipedes luciani
Systellura ruficervix ruficervix	" vestitus smaragdinipectus ²
Trogonurus temperatus	" mosquera
Helianthea lutetiæ	" lugens

¹ Western Andes.

² Eastern Andes.

³ Southwestern Ecuador.

<i>Vestipedes nigrivestris</i>	<i>Cænotriccus ruficeps</i>
“ <i>derbyi derbyi</i>	<i>Euscarthmus granadensis</i>
<i>Heliangelus laticlavus</i>	“ <i>pyrrhops</i> ³
<i>Metallura primolina</i> ²	<i>Spizitornis parula æquatorialis</i>
“ <i>atrigrularis</i> ³	“ <i>agilis</i>
“ <i>baroni</i> ³	<i>Tyranniscus nigricapillus nigricapillus</i>
“ <i>tyrianthina tyrianthina</i> ²	“ <i>uropygialis</i>
“ “ <i>quitensis</i> ¹	<i>Elænia griseigularis</i>
<i>Chalcostigma herrani</i>	<i>Lathria fuscocinerea</i> ²
“ <i>ruficeps aureofastigatum</i> ³	<i>Euchlornis arcuatus</i>
<i>Ramphomicon microrhynchum microrhynchum</i>	<i>Heliochera rubricristata</i>
<i>Opisthoprora euryptera</i> ²	<i>Cinnicerthia unibrunnea</i>
<i>Zodalia orton</i>	<i>Pheugopedius euophrys euophrys</i> ¹
<i>Andigena hypoglaucus lateralis</i>	“ “ <i>longipes</i> ²
<i>Hypoxanthus rivolii brevirostris</i>	<i>Troglodytes solstitialis solstitialis</i>
<i>Veniliornis nigriceps equifasciatus</i>	<i>Turdus gigas gigantodes</i> ³
<i>Scytalopus latrans</i>	“ <i>fuscater quindío</i> ^{1 2}
<i>Myornis senilis</i>	<i>Myioborus bairdi</i>
<i>Acropternis orthonyx infuscatus</i>	“ <i>ruficoronata</i>
<i>Chamæza mollissima</i> ²	<i>Myiothlypis nigrocristatus</i>
<i>Grallaria squamigera</i>	<i>Basileuterus luteoviridis luteoviridis</i>
“ <i>gigantea</i>	<i>Atlapietes spodionotus spodionotus</i> ¹
“ <i>nuchalis nuchalis</i> ²	“ “ <i>comptus</i> ³
“ “ <i>obsoleta</i> ¹	“ <i>schistaceus</i>
“ <i>monticola</i>	“ <i>pallidinuchus papallactæ</i>
<i>Oropezus rufulus</i>	<i>Buarremon assimilis assimilis</i>
<i>Synallaxis gularis gularis</i>	<i>Diglossa lafresnayei</i>
“ <i>unirufa</i> ²	“ <i>aterrima</i>
<i>Pseudocolaptes boissonneauti boissonneauti</i>	<i>Oreomanes fraseri</i>
<i>Pseudocolaptes boissonneuti intermedia</i> ³	<i>Conirostrum sitticolor</i>
“ “ <i>johnsoni</i> ²	“ <i>fraseri</i>
<i>Thripadectes flammulatus</i>	<i>Procnopis vassori</i>
<i>Margarornis perlata</i>	<i>Iridosornis rufivertex rufivertex</i> ²
<i>Dendrocincla tyrannina</i>	“ “ <i>ignicapillus</i> ¹
<i>Ochthodiæta fumigata fumigata</i>	<i>Pœcilothraupis lunulata atricrissa</i>
<i>Ochthoeca brunneifrons</i>	“ <i>palpebrosa palpebrosa</i> ²
“ <i>frontalis frontalis</i> ¹	“ “ <i>cærulescens</i> ³
“ “ <i>orientalis</i> ²	<i>Buthraupis cucullata cucullata</i>
“ <i>pulchella jelskii</i> ³	“ <i>eximia chloronota</i>
“ <i>rufipectoralis rufopectus</i>	<i>Dubusia tæniata</i>
“ <i>cinnamomeiventris</i>	<i>Sericossypha albocristata</i>
“ <i>diadema gratiosa</i>	<i>Hemispingus atropileus</i>
<i>Mecocerculus leucophrys rufomarginata</i>	“ <i>superciliaris superciliaris</i>
“ <i>stictopterus stictopterus</i>	“ “ <i>nigrifrons</i>
	<i>Cnemoscopus rubrirostris</i> ²
	<i>Pseudospingus verticalis</i> ²

¹ Western Andes.² Eastern Andes.³ Southwestern Ecuador.

Urothraupis stolzmanni	Cyanolyca pulchra
Psittospiza riefferi riefferi	" angelæ
Cyanolyca turcosa	

*Distributional Analysis of the Birds of the
Humid Temperate Zone in Ecuador*

GENERA

Total number	64
Common to both eastern and western Ecuador	57
Per cent of total	.89
Eastern but not western	4
Western but not eastern	3
Found also in the Tropical and Subtropical Zones	15
Found also only in the Subtropical Zone	24
Found only in the humid Temperate Zone	21
Found also only in the South Temperate Zone	4

SPECIES

Total species and subspecies	108
Total eastern	92
Total western	88
Per cent of eastern of total	.85
Per cent of western of total	.81
Recorded from eastern but not from western Ecuador	10
Per cent of total	.09
Recorded from western but not from eastern Ecuador	6
Per cent of total	.05
Recorded from both eastern and western Andean slopes	82
As the same form	72
As different subspecies of the same form	9
As representative species	1
	—
Total	82
Ratio to total	.76

The Bird-Life of the Arid Temperate Zone.—Faunally, there is no east or west to the arid Temperate Zone. Cradled in the tableland, it extends upward to the Paramo and, where forest is lacking, reaches the outer mountain slopes. Of the 34 species allotted to this division of the Temperate Zone, 9 are Hummingbirds, some of which might, doubtless, be better assigned to the humid Temperate, and most of which are, probably, of subtropical origin. Omitting these as of uncertain geographic derivation, *Orodynastes*, *Orochelidon*, and *Idiospiza* remain as the only genera peculiar to the arid Temperate Zone which occur in Ecuador.

Only 4 species, all Hummingbirds, are restricted to Ecuador; 6 are found from Ecuador south, 9 from Ecuador north, and 15 are found both north and south of Ecuador but are, for the greater part, of southern origin.

We have seen that the comparatively low temperature prevailing on the coast of Peru has created a confusing fusion of zones resulting in the existence, side by side, of species of Tropical and of Temperate origin. Attention has also been called to the fact that to a limited degree similar conditions exist on the coast of Ecuador at Santa Elena, where such distinctly South Temperate species as *Buteo erythronotus*, *Thinocorus rumicivorus*, and *Oreophilus ruficollis* have been found. In defining the arid Temperate, therefore, we should mention this tinge of Temperate life which exists at sea-level west of the line of annual rainfall as defined by Murphy.¹

*List of Species which Characterize the Arid Division
of the Temperate Zone*

Chamæpelia passerina quitensis	Agriornis solitaria
Rallus virginianus æquatorialis	Orodynastes striaticollis
“ semiplumbeus	Muscisaxicola maculirostris rufescens
Gallinago nobilis	Orochelidon murina
Circus cinereus	Turdus chiguanco conradi
Dafila spinicauda	Anthus bogotensis bogotensis
Buteo polyosoma polyosoma	Idiospiza inornata minor
“ pœcilochrous	“ homochroa
Speotyto cunicularia nanodes	Sicalis luteiventris bogotensis
Streptoprocne zonaris altissima	Catamenia analoides söderstromi
Patagona gigas ²	Phrygilus alaudinus bipartitus
Psalidoprymna victoriæ æquatorialis	“ plebejus ocularis
“ gouldi gracilis	

*Distributional Analysis of the Birds of the
Arid Temperate Zone in Ecuador*

GENERA	
Total number	28
Restricted to Ecuador	0
Restricted to the arid Temperate Zone (including 6 Hummingbirds)	9
South Temperate	6
Subtropical	1
Tropical	2
North Temperate	2
North and South Temperate	2
Cosmopolitan	6

¹ Bull. Amer. Mus. Nat. Hist., XXV, 1925, p. 445.
² Some Hummingbirds, influenced by the blooming of flowers, pass from the humid to the arid division of the Temperate Zone. It is difficult, therefore, to classify them divisionally.

SPECIES

Total number	34
Species peculiar to Ecuador (all Hummingbirds)	4
Subspecies peculiar to Ecuador	2
Ecuador and southward	7
Ecuador and northward (including 4 Hummingbirds)	4
Ecuador and northward and southward	14

*Remarks on the Origin of Temperate Zone Bird-Life.*¹—We look for the ancestors of forest forms in forests; for those of plains in other plains. So, as has been said, although the humid and arid divisions of the Temperate Zone lie side by side, or even interlock, their birds come from widely separated regions.

Central America has only two of Ecuador's Temperate Zone forms, *Glaucidium jardini* and *Pseudocolaptes lawrencei* (representing *P. boissonneauti*), both of which occur in the Subtropical Zone in Costa Rica. The South Temperate Zone forests of Chile are separated from those of the Tucuman region by about 600 miles; the latter from those of Bolivia by approximately the same distance. *Spizitornis* (a semi-arid type found throughout the greater part of Argentina) and *Scytalopus* (found also in southeastern Brazil) are the only forms common to southern Chile and the humid Temperate Zone of Ecuador. It is evident, therefore, that we must look elsewhere than to northern or southern temperate regions for the immediate ancestors of humid Temperate Zone bird-life. The only forested areas remaining are those of the Tropical and Subtropical Zones, and, as the latter is the nearer, it is there, rather than in the former, that we should look for the sources of humid Temperate life. We find, therefore, that of the 64 genera accorded to the humid Temperate Zone, 24 are exclusively Subtropical and Temperate, and 15 are found in the Tropical as well as the Subtropical, making 39 which are common to the Temperate and Subtropical. Four are of South Temperate origin and 21 are confined to the zone. It is clear, therefore, that the bird-life of the humid Temperate Zone has been derived chiefly from the Subtropical Zone. If this be true, it should follow that although the zone itself is younger than the zone from which it has arisen, its life should be more highly differentiated. This statement is based on the assumption that organisms which have been subjected to the influences of two new environments should show more pronounced changes than those which have been subjected to but one. In other words, if subtropical forms have popu-

¹ See also the more general discussion of the origin of zonal faunas beyond.

lated the humid Temperate, to their subtropical differentiations should be added those of the humid Temperate. It is difficult to measure the extent of differentiation in forms whose ancestors are unknown, but it is obvious that in such characteristic humid Temperate birds as *Ensifera*, *Aglæactis*, *Ramphomicron*, *Hypoxanthus*, *Myornis*, *Acropternis*, *Oreomanes*, *Sericossypha*, and *Urothraupis*, we have types far removed from the ancestral stock. Perhaps the comparative distinctness of the two faunas may be in a measure expressed by the statement that of the 64 genera of the humid Temperate, 45, or 70 per cent, are wholly zonal; while of the 142 subtropical genera only 70, or 45 per cent, are zonal.

Just as we look to other forested regions for the sources of humid Temperate life, so we must look to other arid regions for the geographic origin of the species of the arid Temperate Zone. If we exclude the Hummingbirds, the origin of which is uncertain, we shall find that most of our arid Temperate species have come from or are found in other temperate regions. *Zenaida auriculata*, *Circus cinereus*, *Dafila spinicauda*, *Buteo melanoleucus*, *B. erythronotus*, *Agriornis solitaria*, *Orodynastes striaticollis*, *Muscisaxicola maculirostris rufescens*, *Turdus chiguanco conradi*, *Anthus bogotensis*, *Idiospiza inornata minor*, *Sicalis luteiventris*, *Catamenia analoides*, *Phrygilus alaudinus*, and *P. plebejus*, are all of southern origin, chiefly from the South Temperate Zone. *Cerchneis sparveria* and *Speotyto* are found throughout the greater part of the western hemisphere, and *Rallus virginianus*, like *Asio flammeus* and *Cistothorus*, is one of the species which range from the North Temperate to the South Temperate over an Andean bridge. Possibly some high Andean birds which we think of as of southern origin (e.g. *Porphyriceps*, *Vultur*, *Circus cinereus*) may have had a similar distribution with subsequent extinction at the north.

It should be noted that the comparatively near open country of the Equatorial Arid Fauna has apparently contributed but little to the arid Temperate. *Pyrocephalus rubinus* ranges up to the hot Guailabamba Cañon and occasionally reaches Quito; and *Trupialis bellicosa* appears to occur regularly from Riobamba southward. The *Sicalis* of the tableland is not, however, the species which lives at the base of the mountains, but the *Sicalis* of the South Temperate Zone, just as the Rhea of the Bolivian highlands is not the species found in the neighboring lowlands, but that of southern Patagonia.

In its geographic origin, the life of the arid Temperate is so like that of the Paramo that we may treat of the latter before comparing the history of the plains-inhabiting with that of the forest-inhabiting species of the highlands and commenting on upper Andean life.

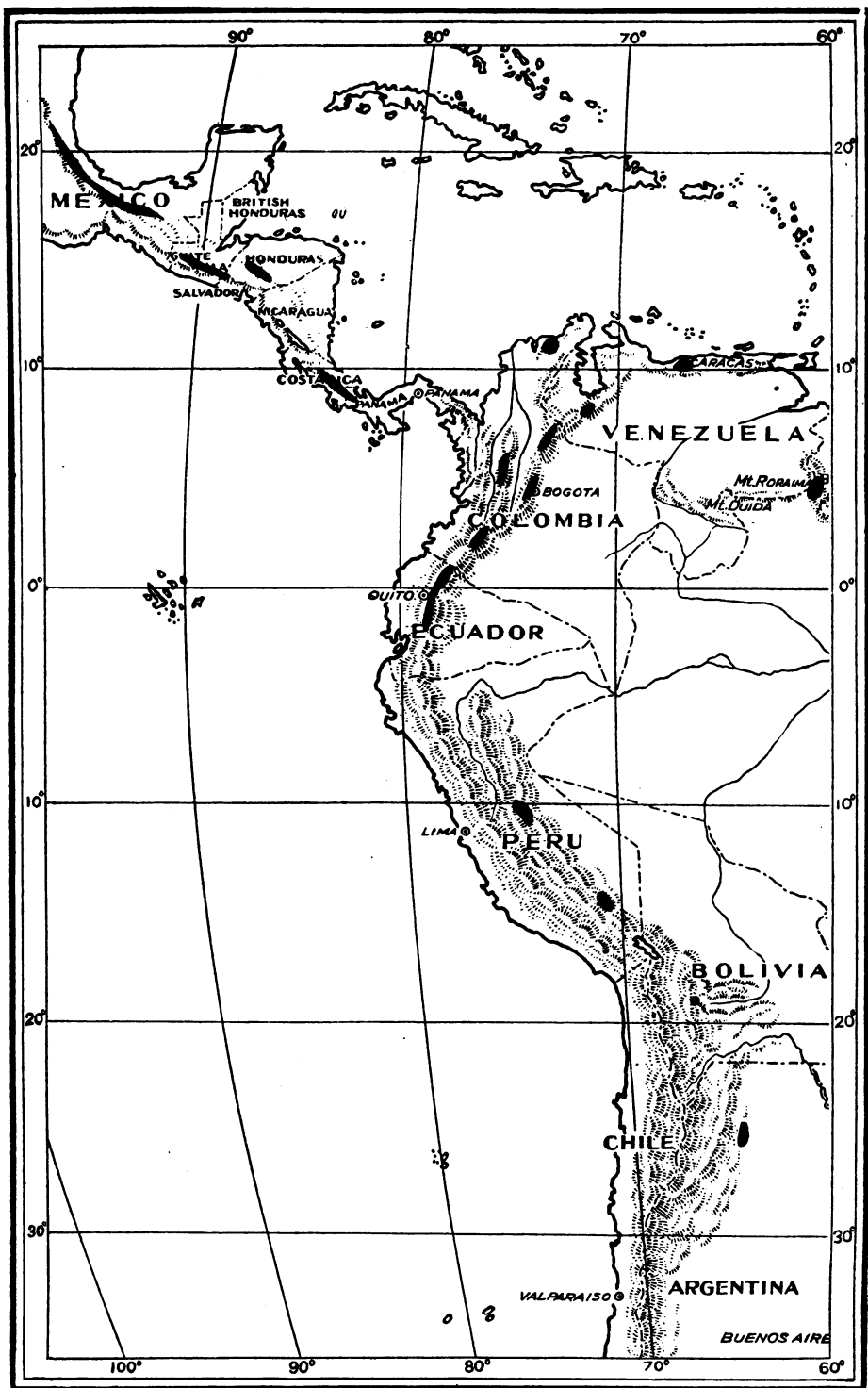


FIG. 16. Recorded distribution in the Andes of the Genus *Cistothorus*, which is represented by closely allied forms in the North Temperate and South Temperate Zones, and in the intervening region by related races in the upper-Andean life-zones. It is also one of the group of upper-Andean genera which are found on Mt. Roraima. (Other members of this group are *Diglossa* and *Spinus*.)

SUMMARY AND CONCLUSIONS

1. The Temperate Zone in Ecuador lies between approximately 9,000 and 12,000 feet and has a humid and an arid section.

2. The humid Temperate lies chiefly on the outer mountain slopes and includes all forested areas above the Subtropical Zone. It is a faunal unit and cannot, like the Subtropical, be separated into eastern and western divisions.

3. The arid Temperate includes all treeless areas above the Subtropical and below the Paramo. Like the humid Temperate, it is a faunal unit.

4. In Peru and Bolivia, the greater elevation of the interandine tableland is apparently responsible for conditions which affect the distribution of man as well as birds, and here the arid Temperate is difficult to distinguish from the Paramo Zone.

5. In their structural relations and geographic origin, the birds of the humid and arid Temperate are wholly unlike, the life of the latter being more nearly related to that of the Paramo than to that of the humid Temperate. Evidence, however, is presented for the faunal association of the arid Temperate with the humid Temperate rather than with the Paramo.

6. The uniformity of humid Temperate life supports the theory that Subtropical life was largely developed while this zone occupied the summit of the Andes.

7. The humid Temperate fauna of Ecuador is more closely related to that of Colombia than to that of Peru.

8. The East Andes of Ecuador are faunally nearer to the Central, than to the East Andes of Colombia.

9. A large proportion of humid Temperate life is distributed throughout the greater part of the zone.

10. The birds of the humid Temperate were derived chiefly from the Subtropical Zone and include the oldest and most strongly differentiated forms of Andean life.

11. The comparatively near Equatorial Arid Fauna has contributed little or nothing to the arid Temperate, the birds of which have been chiefly derived from the arid South Temperate.

12. It is not improbable, however, that representatives of boreal groups, now confined to South America, may have reached the South Temperate Zone over a high Andean bridge and later have become extinct in the north.

THE PARAMO ZONE

Boundaries, Characteristics, and Habitats

Bird-Life of the Paramo Zone

The Origin of Paramo Zone Bird-Life

Arid Temperate and Paramo Bird-Life Compared

Summary

THE PARAMO ZONE

BOUNDARIES, CHARACTERISTICS AND HABITATS

On the outer or forested slopes of the Andes, the Paramo Zone lies between the upper limits of tree-growth and the summit of the range, or the lower limits of snow. On the inner or interandine slopes, it occupies a similar position above the arid Temperate. On the outer slopes of Pichincha, the Paramo begins at about 12,500 feet, but above the Chimbo Valley, in response to the influences which lower the altitudes of the humid Temperate and Subtropical Zones, it descends to as low as about 9,500 feet.

On the Amazonian slopes of the Andes it is probable that the Paramo is usually, if not always, above 12,000 feet. In tilled areas of the interandine region, its lower margin approximately coincides with the upper limit of cultivation. This, between Riobamba and Urbina on the slopes of Chimborazo, is 11,000 feet. According to Wolf, the Paramo lies between the altitudes of approximately 11,000 and 15,000 feet.

As a result of greater elevation, the Paramo is far more extensive in Ecuador than it is in Colombia. In the latter country it exists as a series of comparatively small detached islands; in the former its continuity is broken only by the passage of interandine-born rivers to the lowlands and in several places its eastern and western divisions are connected by the transverse ranges or 'nudos.'

Todd and Carriker record 7 Paramo species from the Santa Marta region, including *Cinclodes* and *Phrygilus unicolor*. Both these forms occur in the Mérida region of western Venezuela, which marks the end of the zone in the Andes.

To the south there is a break in the Paramo between latitude 5° and 6° when it reappears in both the eastern and western Andes.

HABITATS OF THE PARAMO ZONE

The two outstanding habitats of the Paramo Zone are those of land and water. The former may doubtless be subdivided into the lower or

grassy Paramo and the upper or rocky Paramo, with a narrow but distinct zone of vegetation where the ground is watered by melting snows. Characteristic of the former are *Leptasthenura andicola*, *Siptornis flammulata*, *S. wyatti æquatorialis*, *Cistothorus æquatorialis*, and *Asio flammeus bogotensis*, while in the latter are found *Attagis*, *Oreotrochilus*, *Upucerthia*, and *Cinclodes*.

The lakes of the Paramo possess, in addition to *Fulica*, *Larus*, and *Dafila*, which are found also in the Temperate Zone, *Colymbus calipareus juninensis*, *Nettion andium*, and *Erismatura ferruginea*.

THE BIRD-LIFE OF THE PARAMO ZONE

Although certain birds (for example, *Fulica ardesiaca*, *Larus serranus*, *Ptiloscelys resplendens*, and *Dafila spinicauda*) are common to both the Paramo and Arid Temperate, it is possible readily to distinguish between the avifaunas of these two zones in Ecuador. Excluding the comparatively limited number of species found in both zones, and whose wanderings may be in part seasonal, of the 52 genera allotted to the arid Temperate and Paramo, only 4 are common to both. In view of the fact that their boundaries adjoin, and that both zones are adapted to the wants of birds of essentially similar habits, these figures express an unexpected degree of difference.

I allot 33 species of 28 genera to the Paramo Zone in Ecuador, or about double the number we found in Colombia. No genera are peculiar to Ecuador. Six are restricted to the Paramo, of which 3 are Hummingbirds, and, of the 3 remaining, at least 2 are of South Temperate origin; 7 are found in both the North and South Temperate and 15 are South Temperate, that is, reach sea-level in southern South America.

Of the 33 species, 5 (including 3 Hummingbirds) are peculiar to Ecuador, 5 are found both north and south of Ecuador, 5 are found from Ecuador northward, and 15 from Ecuador southward.

*Remarks on the Origin of Paramo Zone Bird-Life.*¹—Whatever may be the relations of the arid Temperate and Paramo in Peru and Bolivia, it is obvious that in Ecuador and Colombia they constitute two distinct and well-defined faunal areas.

The evidence on which this statement is based is presented above in discussing the faunal position of the arid Temperate Zone. Briefly, it was shown that the arid Temperate finds its sea-level equivalent in the latitude of central Chile, while the Paramo Zone, which is there

¹See also the general discussion of the origin of zonal faunas beyond.

still confined to the high Andes, does not descend to sea-level until still lower latitudes have been reached.

We can well understand why the plains-inhabiting species of the arid Temperate cannot have come from the forests of the Subtropical, but it is amazing to find that the plains-inhabiting species of the Paramo have not come from the adjoining plains of the arid Temperate Zone.

Phrygilus alaudinus inhabits the South Temperate in central Chile and is restricted to the arid Temperate in Ecuador. Evidently, it follows the zonal lines of least resistance, and they lead over 2,000 miles from Chile to Ecuador but do not induce it to cross the few hundred feet from the arid Temperate to the Paramo in Ecuador, impressive evidence of the power of the invisible barriers which mark the limits of faunal areas. Where temperate conditions occur at sea-level, zonal affinity brings it to the coast. In response to influences which affect man as well as birds, it associates with Paramo species in the Peruvian tableland; and when these two streams of life separate to resume their normal relations, it returns to its proper level.

On the other hand, *Phrygilus unicolor*, a bird of the Paramo in Ecuador, is a bird of the Paramo in Chile, and with its zone it keeps to the high Andes.

Among the Hummers, *Patagona* and *Oreotrochilus* present a somewhat similar case. The former is an arid Temperate bird; the latter inhabits the Paramo; and no birds are more characteristic of their respective zones in Chile as well as in Ecuador. *Patagona* is a common summer resident about Santiago, where *Oreotrochilus* lives above timber-line, but whether it reaches sea-level in southern Chile I do not know. If it does, we ask whether both these birds are not of southern origin.

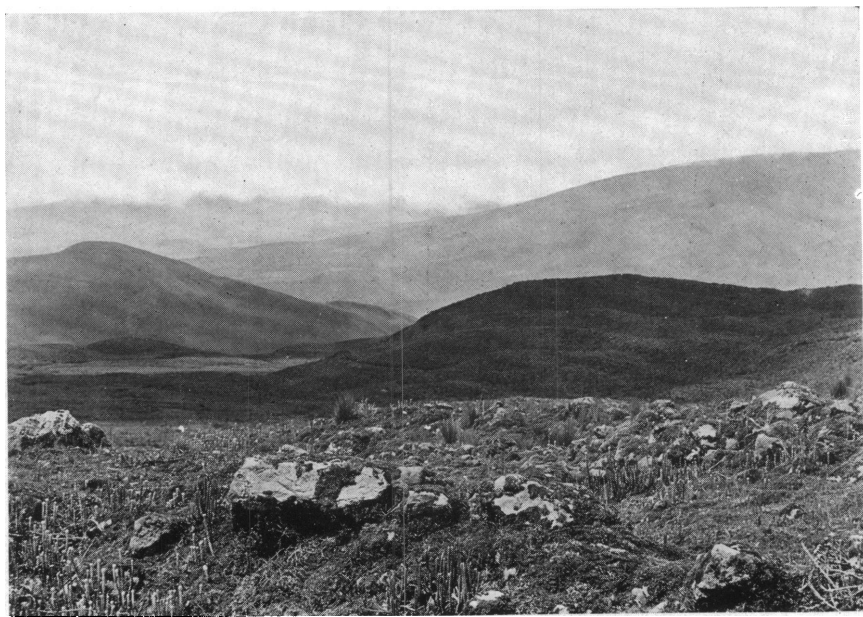
Exclusive of these two Hummingbirds, the southern origin of not less than 22 of Ecuador's Paramo birds may be traced beyond question, and half this number have reached Ecuador with not more than sub-specific change.

Nettion andium, *Gallinago jamesoni*, *Ibycter carunculatus*, two species of *Schizæaca*, *Chalcostigma stanleyi*, and *Pterophanes cyanopterus* are Paramo species of uncertain origin; while *Fulica*, *Erismatura*, *Asio*, and *Cistothorus*, like *Rallus virginianus*, are both North and South Temperate in their affinities and appear to have used the Andes as a bridge in passing from one zone to the other.

In general, then, it may be said that the Paramo bird-life of Ecuador is in large part derived from extreme southern South America, and that the ancestry of most of the species so originating can still be determined.



PARAMO ZONE ON THE EAST SLOPE OF CHIMBORAZO, ABOVE URBINA
May, 1916.



EAST SLOPE OF CHIMBORAZO (ALT. 14,500 FT.)
Foreground, upper Paramo, looking down to lower, or grassy Paramo Zone. May, 1916.

List of Birds which Characterize the Paramo Zone

Nothoprocta curvirostris	Oreotrochilus chimborazo
Tinamotis pentlandi simonsi	“ jamesoni
Metriopelia melanoptera saturator	Chalcostigma stanleyi
Colymbus calipareus juninensis	Pterophanes cyanopterus
Fulica ardesiaca	Upucerthia excelsior excelsior
Larus serranus	Cinclodes fuscus albidiventris
Attagis latreillei	Schizoeaca fuliginosa
Ptiloscelys resplendens	“ griseo-murina
Gallinago jamesoni	Leptasthenura andicola andicola
Theristicus branicki	Cranioleuca graminicola azuay
Nettion andium	“ wyatti æquatorialis
Erismatura ferruginea	“ flammulata flammulata
Sarcorhamphus gryphus	Agriornis pollens
Asio flammeus bogotensis	Cnemiarctus erythropygius
Bubo virginianus nigrescens	Muscisaxicola alpina alpina
Ibycter megalopterus	“ albilora
“ carunculatus	Cistothorus platensis æquatorialis
	Phrygilus unicolor grandis

Distributional Analysis of Paramo Zone Bird-Life of Ecuador

GENERA

Total number	28
Peculiar to the Paramo Zone (including 3 Hummingbirds)	6
Restricted to Ecuador	0
South Temperate	15
North and South Temperate	2
Cosmopolitan	5

SPECIES

Total number	33
Species peculiar to Ecuador (including 3 Hummingbirds)	5
Ecuador and southward	15
Ecuador and northward	0
Ecuador northward and southward	8

Remarks on Arid Temperate and Paramo Bird-Life.—The arid division of the Temperate Zone and the Paramo Zone, in their general physical aspects and the origin of their bird-life, have so much in common that certain generalizations apply with equal truth to both of them.

They not only are the most recent of Andean life areas, but they are the only ones to be connected with a faunally equivalent sea-level base. The elements of time and space are therefore far more definite quantities in the life of these upper Andean plains than in that of the zones which lie below them.



FIG. 17. Semi-diagrammatic representation of the breeding-range of *Cinclodes fuscus*, a species of South Temperate origin which ranges almost continuously from Tierra del Fuego north to the Paramo Zone of Ecuador, is unknown from the Andes of Colombia, but is found in the Paramo Zone of Santa Marta and western Venezuela.

It illustrates the southern origin and comparatively slight differentiation of a Paramo Zone species and its discontinuous distribution north of Ecuador. Compare with map showing range of the genus *Heliochera*, where the marked environmental differences between Tropical and Temperate Zone forests, separated by but a few miles, are believed to have resulted in the development of the distinct types characterizing the humid Temperate Zone, while species of the Patagonian plains range 4,000 miles northward over high Andean plains with only slight differentiation.

We may trace not only genera but species to their geographical source, noting their variations from the ancestral type, or we may observe others, like the Condor, which range from the Straits of Magellan to the summit of the Equatorial Andes and exhibit no appreciable physical change. Here, then, we actually have zonal life in the making.

I have already drawn attention to the fact that the Equatorial Arid Fauna has contributed little or nothing to the arid Temperate, and that the latter has given little to the Paramo, but these facts are of sufficient importance to be emphasized.

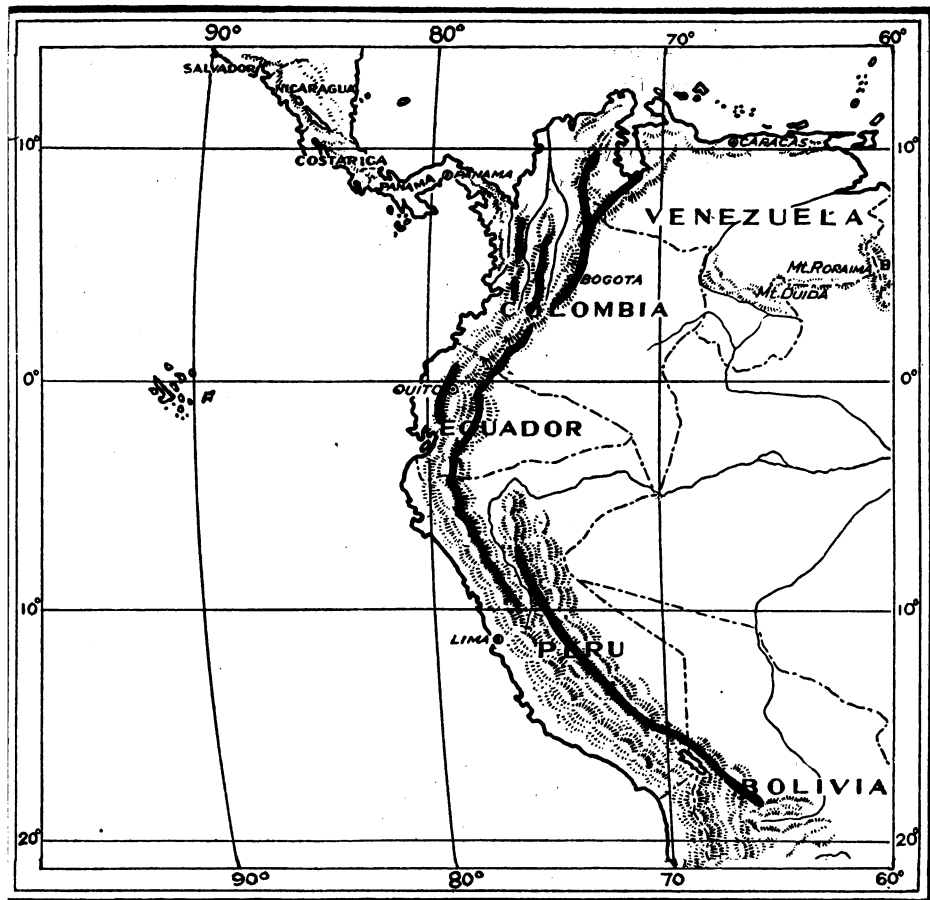


FIG. 18. Semi-diagrammatic representation of the range of *Heliochera*, a very distinct cotingine genus restricted to the forests of the humid Temperate Zone, which has presumably been derived from a forest-inhabiting ancestor of the humid Tropical Zone at the base of the Andes. The humid Temperate Zone forest, and hence the distribution of the genus, is less continuous than is here indicated.

So far as habitat requirements are concerned, there are numbers of Equatorial Arid forms which would find congenial surroundings on the upper Andean plains, but *Trupialis bellicosa* is the only arid Temperate form which can certainly be accredited to the Equatorial Arid, others common to both, like *Zenaida auriculata*, being of South Temperate rather than coastal origin.

It is far more remarkable, however, that the Paramo has taken so little from the arid Temperate, and the fact that both draw their life from their sea-level equivalent, distant over 2,000 miles, rather than from contiguous regions, is an indication that the South Temperate and Paramo of Chile are more like the same zones in Ecuador than the latter are like other plains in the same latitude.

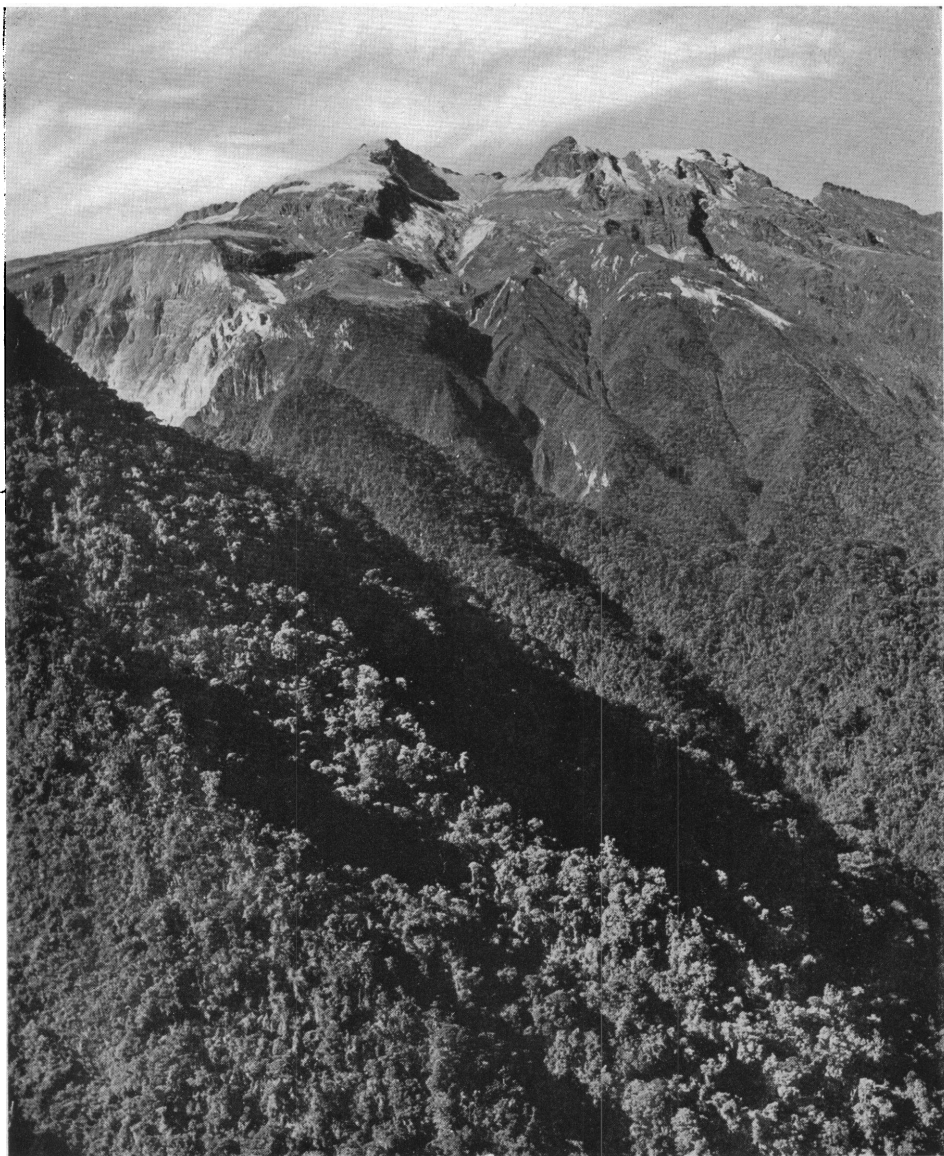
It should follow, therefore, that the forms inhabiting the arid Temperate and Paramo have experienced less environmental change in coming from Chile to Ecuador than those inhabiting the humid Temperate have undergone in extending their range from the neighboring Subtropical Zone

If this assumption is correct, and if the extent of environmental change is reflected in the comparative degree of differentiation exhibited by the forms of contrasted areas, then the humid division of the Temperate Zone should have more forms peculiar to it than are found in both the arid Temperate and Paramo combined.

The facts in the case support this conclusion. Thus, of the 64 genera recorded from the humid Temperate, 21, or 33 per cent, are peculiar to it, while of the 42 genera¹ recorded from the arid Temperate and Paramo, 6, or 14 per cent, are peculiar to it.

It may be said, as I have already shown, that humid Temperate life is much older than that of the arid Temperate and Paramo, and hence should exhibit greater differentiation. It is older when compared with the original or basal forms from which it has descended, and if we should base our comparison of the upper Andean plains and humid Temperate faunas on all the zonal genera found in each, we should still have 14 per cent for the former and but 70 per cent for the latter. It is not, however, appreciably older when we compare the humid Temperate fauna with the Subtropical forms from which it is believed to have descended. It is, therefore, not the period of time involved nor the distance from the point of origin, but the extent of the change encountered which chiefly expresses itself in the distinctive characters of the organism.

¹I exclude Hummingbirds as of probably humid Temperate origin.



NORTHWEST SLOPE OF PICHINCHA (ALT. 11,000 FT.)

Foreground a forest of the humid Temperate Zone, the bird-life of which is of tropical origin. The treeless slopes immediately above timber-line are in the Paramo Zone, and their bird-life is chiefly of Patagonian origin.

DISCONTINUOUS RANGES AND THEIR SIGNIFICANCE

We have now reached a stage in our study of Andean bird-life when, in some instances at least, we may venture to assert that a species does *not* occur in a stated area. Such cases of discontinuous distribution occur chiefly in the upper life-zones. They are of much significance and demand consideration.

Where the required habitat is wanting, the absence of the species may be expected. For example, *Oreotrochilus* is known in Ecuador only from the upper part of the Paramo Zone on Chimborazo, Quillotoa, Cotopaxi, Antisana, and Pichincha, the intervening territory lacking the type of habitat to which this bird in Ecuador is restricted. *Cinclodes fuscus albidiventris*, of Ecuador, unknown in the Colombian Andes, is represented by close allies on Santa Marta and in the Méridan Andes.

The four species of the genus *Oxypogon* have restricted ranges at widely separated points in the Paramo of the Central and eastern Andes of Colombia, Santa Marta, and the Mérida region.¹ In short, Paramo species are wanting where the Paramo itself is absent. This statement seems too obvious to require further comment, but the condition it describes is not so readily explained.

To the person who is impressed by the bird's potential mobility, the occurrence of the same or representative species at widely separated localities is simply a matter of flight from one station to the other and the subsequent establishment of new colonies when favorable conditions are encountered. But the avian geographer is not so easily answered. He knows that most birds are closely confined to their own ranges and that the establishment of isolated colonies by casual dispersion is infrequent. Witness the whole families of birds containing hundreds of species which are common on the mainland from Guiana to Mexico and are wholly unrepresented in the West Indies. Recall the nearly 20 forms known only from the island of Cozumel, distant but 12 miles from the Yucatan mainland, with an essentially similar environment. Consider the striking differences between the zonal faunas of Santa Marta and the neighboring eastern Andes, distant less than 20 miles.¹

There may be cases of discontinuous distribution in the high Andes which are due to accidental dispersion, but, in my opinion, they are too rare to have any bearing on the general problem.

We come now, however, to a type of interrupted distribution which is not to be explained by lack of suitable habitat or by fortuitous cir-

¹Cf. Todd and Carriker, Ann. Carn. Mus., XIV, 1922.

cumstances. I can best explain it by an illustration. *Diglossa brunneiventris*, a bird of the upper humid Temperate, ranges from Bolivia to northern Peru. It is unknown in Ecuador and the greater part of Colombia but reappears at the northern end of the western Andes. It is a common bird. We have taken numerous specimens in Bolivia, near Cuzco, and in northwestern Colombia. It frequents bushy growth where it cannot, if present, be overlooked. I am familiar with it in life and have seen scores of places in Ecuador suited to its habits. Why this great gap in its range?

The Short-eared Owl (*Asio flammeus bogotensis*) is found on the Savanna of Bogotá and the Paramo of northern Ecuador. It is unknown

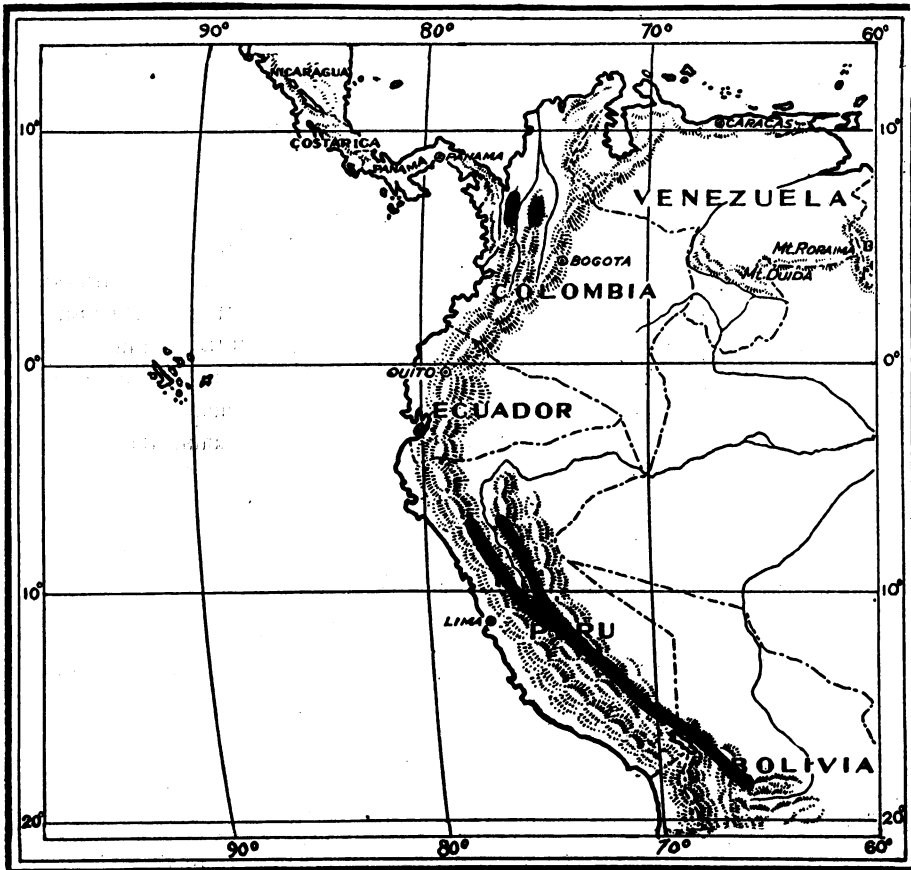


FIG. 19. Distribution of *Diglossa brunneiventris*, a common Temperate Zone species in Bolivia, Peru, and northwestern Colombia, but unknown from Ecuador, illustrating discontinuity in range.

in Peru and Bolivia and reappears on the plains of Argentina in a form barely separable from true *flammeus* (*A. f. brevicaudus*).

A Gallinule-Rail (*Porphyrio melanotos bogotensis*) is common on the Savanna of Bogotá but is unknown between this locality and Argentina.

Rallus virginianus is not uncommon in the Quito region, has been once recorded from Lima, but is unknown thence to Argentina.

In each of these instances there is no lack of suitable habitats in the regions from which the bird is missing. This fact argues against the establishment of isolated colonies by accidental dispersal.

We can understand how, in the course of unlimited time, a mainland species may become established on a remote oceanic island when between its old and new homes it could not exist, but we cannot understand how the cases I have just mentioned, and many more like them, could arise through accidental dispersal when between two widely separated stations there is abundant territory in which lost or wandering individuals might find a suitable home.

I believe, therefore, that these instances of discontinuous distribution have a real significance as an indication of past conditions, and that they must be considered, not only by the zoögeographer as he attempts to discover the origin of Andean life, but by the geologist in his endeavor to trace the origin of the Andes themselves.

Climatic change occasioned by glaciation offers one explanation of discontinuity in range. In response to my request for a brief general statement regarding glaciation in the Andes, Dr. Edward W. Berry writes:

"The only place in South America where there were glaciers to sea-level was in the far south and there there was a diminutive ice-sheet. From about Latitude 45° northward, only mountain glaciers were developed, and these were far from continuous, and their terminal moraines stop at about 12,000 feet above sea-level. I have not made any exhaustive search through the literature, but I know of none lower than between 3,600 and 3,700 meters, and the vast majority stop at 4,000 meters or higher. The country between the great bend of the Marañon and the Pacific appears to have been ice-free from near the pass of Cajas in southern Ecuador to near Hualgayoc in northern Peru (of course we have no detailed information). In Ecuador the sites of the present montane glaciers were slightly extended and there were a few Pleistocene montane glaciers where today there are none as on the Paramos of Azuay, Cañar, and Azogues. Farther south in the Cordillera Blanca of Peru, the mountain glaciers were more continuous over about 10 degrees of latitude and the same is true in the eastern range of Peru between 12° and 18° south."

To these remarks may be added Dr. Alfred Hettner's statement¹ to the effect that at their maximum development the glaciers of the Bogotá region, which are now retreating, were at least 460 meters lower than they were at the time his observations were made. It seems clear, therefore, that in the past, glaciation has lowered the level of the Paramo and Temperate Zones and doubtless exterminated life at higher altitudes.

It is probable that volcanic activity may also have extirpated species regionally. One cannot travel far on the Ecuadorean tableland without being impressed by the widespread evidences of volcanism revealed in railway cuts and cañons. One finally reaches the conclusion that a large part of the tableland and slopes arising from it bear a heavy covering of eruptive material, the deposit of which must have been accompanied by disastrous results to flora and fauna.

In 1919, I requested E. Feyer, of Riobamba, to collect birds for us at timber-line on Tunguragua, but he reported that the entire life-zone of the mountain had been devastated by the eruption of April, 1916.

A disaster of this kind would certainly result in the local extirpation of a species having the zonal range and habits of *Diglossa brunneiventris*, and its occurrence over a wide area would make a correspondingly wide hiatus in the range of the species affected.

In glaciation and volcanism we have, therefore, two factors which unquestionably have affected the distribution of species in the two upper life-zones. But how, then, may we account for the absence of certain species from the Subtropical Zone in Ecuador? For example, *Heliochera rufaxilla* and *Diglossopsis caerulescens* are found in Peru and Colombia but are unknown from Ecuador. Both are represented in each of these countries by different races. The former belongs to a particularly stable group. The only other species in this strongly marked genus, *Heliochera rubricristata*, a near ally, is found in the humid Temperate Zone from Bolivia to Verezuela and shows no appreciable racial variation. Nevertheless, *H. rufaxilla* is represented in Peru and Colombia by different races, a fact which suggests that the Peruvian and Colombian forms are actually isolated by the absence of the species from Ecuador. *Diglossopsis caerulescens*, of Peru, also differs racially from the Colombian form.

I know of no forces now active in the Subtropical Zone which will account for the absence of these two birds from Ecuador. Glaciation can hardly be supposed to have occurred when the Subtropical occupied the summit of the Andes. It is possible, however, that both may have

¹ Petermann's 'Mitteilungen Ergänzungsband' 22, pp. 74, 75, and quoted in my work on Colombian birds, p. 90.

formerly occupied the humid Temperate where they were exterminated by climatic change and volcanic activity in Ecuador while glaciation forced them to a lower level in Peru and Ecuador.

So we may continue to formulate more or less plausible theories to account for the existence of conditions where apparently some relation between cause and effect may still be traced. But there will ever remain many cases which obviously have a profoundly important bearing on the origin of Andean life, and which at present defy even an attempt at explanation. How, for example, may we account for the presence of such characteristic high Andean genera as *Scytalopus* in the mountains of southeastern Brazil, or of *Cistothorus* and *Diglossa* on Mt. Roraima, British Guiana? If we could explain the distribution of only the last-named genus we should possibly know more about the growth of the Andes than we may ever discover. It is the unsolved, and at present unsolvable, problems of this kind that make us realize how many pages in the history of Andean life have not even been turned.

SUMMARY AND CONCLUSIONS

1. The Paramo or upper Andean life-zone lies between approximately 11,000 feet and the snow-line. It is practically continuous in Ecuador, appears as widely separated islands in Colombia, extends north to the Santa Marta Mountains of Colombia and Méridan Andes of Venezuela, and south to sea-level in extreme southern South America.

2. Although contiguous to the arid Temperate and adapted to the wants of most arid Temperate birds, its life has been largely derived from its sea-level equivalent in Patagonia.

3. On the tableland of Peru and Bolivia, in response to unexplained influences, the Paramo is fused with the arid Temperate, but in central Chile the two zones are distinct, the former occupying the valleys and mountain-slopes to timber-line, the latter the succeeding area to snow-line.

4. Several species of the North Temperate Zone reach the South Temperate over a high Andean bridge.

5. The Paramo is the youngest Andean zone, and its life has been acquired so comparatively recently, and has been under so small an environmental change, that in many instances it still resembles the ancestral form.

ZONAL DISTRIBUTION BY FAMILIES

Below is presented a tabulation, by families, of the zonal distribution of birds in Ecuador.

The data concerning the family Falconidæ are far from satisfactory.

Hawks, more than any other birds, are defiers of zonal boundaries. Of powerful flight, strongly organized, predaceous, they seem less susceptible than most birds to those influences which restrict a bird's range. Just where large series of specimens are needed accurately to determine a bird's range, they are lacking, and our statement in regard to the altitudinal range of the members of this group must be considered merely as a contribution toward the subject. With this exception it is believed that the figures which follow are fairly adequate and accurate. In view of the fact that our attempt to define the zonal distribution of birds in Colombia was pioneer work, the results obtained in the two countries show an encouraging degree of accord.

Tabular Synopsis, by Families, of the Zonal Distribution of Resident Ecuadorean Birds

FAMILIES	ZONES				
	Tropical	Sub-tropical	Humid Temperate	Arid Temperate	Paramo
Tinamidæ	12	1	1	1	1
Cracidæ	11	3	3		
Odontophoridæ	8	1+2 ¹			
Columbidæ	16	8+1 ¹	+2 ²	2	1+1 ³
Opisthocomidæ	1				
Rallidæ	14	+1 ¹		4+1 ¹	+1 ³
Heliornithidæ	1				
Podicipedidæ	2	+1 ¹		+1 ¹	1
Laridæ	8			1	+1 ³
Thinicorythidæ					1
Charadriidæ	5			2	2
Jacanicæ	1				
Ædicnemidæ	1				
Aramidæ	1				
Eurypygidæ	1				
Psophiidæ	1				
Ibididæ	2				1
Plataleidæ	1				
Ciconiidæ	1				
Ardeidæ	14			+1 ¹	
Anhimidæ	1				
Anatidæ	5			2	1+1 ³
Phalacrocoracidæ	1				
Anhingidæ	1				
Sulidæ	3				
Fregatidæ	1				
Pelecanidæ	1				

¹ Ranging upward to the Tropical Zone.

² Ranging upward to the Subtropical Zone.

³ Ranging upward to the Temperate Zone.

Tabular Synopsis, by Families, of the Zonal Distribution of Resident Ecuadorian Birds, cont.

FAMILIES	ZONES				
	Tropical	Sub-tropical	Humid Temperate	Arid Temperate	Paramo
Cathartidæ	3	+1 ¹		+1 ¹	1
Falconidæ	52	2+12 ¹		3+8 ¹	1
Bubonidæ	13	1+1 ¹	4	2+1 ¹	2
Psittacidæ	31	5+1 ¹	2+1 ²		
Steatornithidæ	1	1 ¹		1 ¹	
Alcedinidæ	6				
Momotidæ	6	1			
Caprimulgidæ	13	3+1 ¹		1	
Micropodidæ	6	1+1 ¹		1	
Trochilidæ	66	46	31 ⁴		4
Trogonidæ	12	5+1 ¹	1		
Cuculidæ	14	+2 ¹			
Capitonidæ	5	3			
Ramphastidæ	10	7	1		
Galbulidæ	7	1			
Bucconidæ	17	2			
Picidæ	30	4	3		
Hylactidæ	1	2	3		
Conopophagidæ	5				
Formicariinæ	78	16+ 1 ¹	1		
Myrmotherinæ	6	12	4+3 ²		
Dendrocolaptidæ	55	30+ 5 ¹	10+2 ²		8
Tyrannidæ	97	36+13 ¹	16+1 ²	4+1 ¹	3+3 ³
Pipridæ	22	5			
Cotingidæ	37	13+ 1 ¹	2+1 ²		
Phytotomidæ	1				
Hirundinidæ	9	2		2	
Sylviidæ	2				
Troglodytidæ	20	7+ 1 ¹	4		1
Cinclidæ		1	+1 ²		
Mimidæ	2				
Turdidæ	7	9	3		
Vireonidæ	11	6			
Mniotiltidæ	7	11 ¹	4		
Motacillidæ					1
Catamblyrhynchidæ		1			
Fringillidæ	40	17+2 ¹	8+3 ²	5	2+1 ³
Cœrebidæ	15	8	5+3 ²		
Tersinidæ	1				
Tanagridæ	52	46+7 ¹	18+1 ²		
Icteridæ	26	4+2 ¹	1+2 ²		
Corvidæ	2	1	3		

¹ Ranging upward from the Tropical Zone.

² Ranging upward from the Subtropical Zone.

³ Ranging upward from the Temperate Zone.

⁴ Humid and arid divisions of the Temperate Zone.

GENERAL SUMMARY AND CONCLUSIONS

THE DEVELOPMENT OF ALTITUDINAL LIFE-ZONES AND THE EVIDENCE
THEY AFFORD OF EVOLUTION BY ENVIRONMENT

The Development of the Zones.—The Andes, in tropical latitudes, offer better opportunities for the development of zonal faunas than any other region in the world. This is due, not alone to their ascent from both humid and arid areas to snow-line, but to their unbroken extension to the South Temperate Zone and probable former connection with the North Temperate Zone.

The zonal life of isolated mountains, even when they arise from tropical abundance to perpetual snow, is insignificant when compared with that of the equatorial Andes. Ruwenzori, an isolated, snow-capped mountain-mass of equatorial Africa, 70 miles in length and with an altitude of 16,800 feet, possesses, according to Dr. J. P. Chapin, only 95 zonal birds, while from Ecuador we have recorded 412, of which not less than 300 could be found within an area no larger than that occupied by Ruwenzori. It is, therefore, to their length, as well as to their height, that the Andes owe their rich zonal life.

Omitting marine and migratory species, the zonal species of Ecuador form nearly one-third the known avifauna of the republic. These birds are distributed zonally as follows: Subtropical, 46 genera, 237 species; Temperate, 30 genera, 142 species; Paramo, 6 genera, 33 species.

These 400-odd forms, compared with the basal life from which apparently they have arisen, are new species in the real sense of the word. They cannot, presumably, be older than the environments in which they have developed, and hence apparently have evolved since the latter part of the Tertiary.

No new families have appeared, and while many species are so distinct that their ancestry cannot be determined, the origin of the genera can usually be traced.

Briefly, it appears that the Subtropical Zone, which is forested, has derived its life chiefly from the forested humid tropics; that the humid or forested division of the Temperate Zone owes its life largely to the subtropics; that the life of the plains, or the arid division of the Temperate Zone, came largely from the plains of the South Temperate Zone, while the birds of the Paramo came from still lower latitudes.

We find, then, that zonal life is derived from two quite different and widely separated sources; one the neighboring lower zone, the other the remote zonal equivalent at sea-level. It is not difficult for us to understand how a species of the South Temperate plains of Argentina or Chile

has extended its range up the Andes toward the Equator and, by increasing its altitude, remained in a Temperate Zone. We have, indeed, numerous existing cases of this kind in which species are distributed continuously from sea-level in the South Temperate to an altitude of from 9,000 to 12,000 feet in Ecuador. The Condor is a striking example. A sea-level bird in Patagonia, it is rarely seen below 10,000 feet in Ecuador. The greater part of the avifauna of the arid portion of the Temperate Zone and of the Paramo Zone presents a similar type of distribution. We cannot, however, so readily and satisfactorily explain the methods by which the life of one zone is derived from that of the zone immediately below it. Their respective faunas may show no evidence of intergradation, indeed, may be far more unlike than those of widely separated areas.

How, to be more definite, has subtropical life arisen from tropical, humid temperate from subtropical, without leaving some traces of its development? I can offer only theoretical replies to these questions.

Our study of Ecuadorean bird-life indicates that in their early stages, as at present, humid forests existed at both the eastern and western bases of the Andes, and that the mountain slopes were wooded as they were elevated. The elevation to new zonal heights was not accomplished in a day. The change from tropical to subtropical altitudes was doubtless so gradual that the new areas afforded by increasing elevation were probably occupied as soon as they were habitable.

Thus slowly, in response to the changing conditions arising from the entrance to another climatic zone, a new flora and fauna came into existence; new ecologic relations were established; and, as the innumerable factors of the new environment became cumulatively effective, they exerted influences on the evolution and distribution of life which existed only in part during the period of elevation to subtropical heights.

In other words, zonal boundaries and zonal potencies did not come into existence until the zone itself became a faunal entity. We should avoid, therefore, the tendency to form a mental image of a life-zone as fully developed physically and awaiting the reception of its fauna, for all the evidence shows that zone and fauna were developed together. Hence, the life of a zone may be considered as old as the zone itself. The most active evolutionary period, therefore, was doubtless that of zone-formation, a supposition which helps to explain the absence of intergrades between representative zonal species.

The two distinguishing characteristics of the Subtropical Zone in the Andes are physical continuity and environmental uniformity. These factors combine to produce the extended ranges of subtropical species,

many of which are found throughout the zone. This condition gives rise to the query, were these species developed locally, with subsequent dispersal, or by parallelism wherever the range of the ancestral stock bordered the Subtropical Zone? The latter theory seems wholly untenable.

Prior to the later stages of Andean uplift, when the Subtropical Zone occupied the crest of the range, it is probable that it may have appeared on summits separated from one another by lower tropical areas, just as Temperate Zone summits are now separated by subtropical areas. Such conditions would have supplied an isolation highly favorable for the origin of local forms, the characters of which may have become well developed prior to a further orogenic movement. Subsequent elevation, such as is said to have occurred late in the Tertiary, would raise the



FIG. 20. Distribution of the *Momotus lessoni* group, to illustrate the apparent northern origin of *Momotus æquatorialis*, a species of the Andean Subtropical Zone. Note the absence of the species in the Panama 'fault.' It has, however, recently been taken in western Panama.

- | | |
|------------------------------------|-----------------------------------|
| 1. <i>Momotus ceruleiceps</i> | 3. <i>Momotus lessoni exiguus</i> |
| 2. <i>Momotus lessoni goldmani</i> | 4. <i>Momotus lessoni lessoni</i> |
| 5. <i>Momotus æquatorialis</i> | |

intervening tropical areas to the altitude of the Subtropical Zone and thereby connect the subtropical 'islands' by a series of bridges, making the zone almost continuous from Bolivia to Venezuela.

The 'island' forms, which had become adapted to life at subtropical altitudes, would have a great advantage over tropical species in taking possession of these new subtropical areas, and, following an uplift, there doubtless was a dispersal of subtropical species through all the region which had attained the elevation of the Subtropical Zone.¹

If this theory should offer a reasonable explanation of how numbers of subtropical species have acquired the extended ranges they now occupy, it is obvious that the place of origin of a subtropical species must often be some point removed from the greater part of its range. I have found, for example, that the ancestor of *Momotus æquatorialis* of the Subtropical Zone from Colombia to southern Peru is apparently *Momotus lessoni* of Mexico, while *Buarremon brunneicapillus*, found almost throughout the Subtropical Zone, is also believed to have come from a Mexican ancestor.

There is, I hope, some truth in these theories regarding the processes through which subtropical life has been evolved, but I do not feel that they adequately express the real relations between neighboring zones. We are too apt, I fear, to think of these relations as similar to those which exist between minor intergrading faunal areas, but, as a matter of fact, we are dealing with sharply and strongly contrasted major faunal areas. While no visible barriers separate the Subtropical from the Tropical Zone, the humid Temperate from the Subtropical, the arid Temperate from the Paramo, these barriers exist, permitting the currents of zonal life to flow side by side without intermingling. We must not let the proximity of altitudinal zones lead us into the belief that they are as much alike in general characteristics as they are near each other geographically. Accustomed to think of faunal boundaries in terms of latitude, we fail, I believe, to realize how infinitely more definite they are when determined by altitude. Recalling Humboldt's Law, it will be remembered that, as we proceed from the equator toward the poles, the mean temperature decreases one degree Fahrenheit with each degree of latitude. But as we ascend a mountain, the mean temperature decreases one degree with each 300 feet of altitude. In other words, the change due to altitude is one thousand times more rapid than that occasioned by latitude!

Generally speaking, the change from one zone to another is as abrupt

¹ I find that Mr. W. E. Clyde Todd has already advanced an essentially similar theory in writing of the Santa Marta avifauna. See 'Birds of the Santa Marta Region,' p. 89.

biotically as it is climatically. There are no wide transitional areas such as lie between life-zones at the same level. We may, indeed, believe that the neutral area between zones is too small to develop and support intergrades between their species. A tropical form entering the Subtropical Zone is therefore, in a sense, as isolated from the tropics as though it had reached an island, and it becomes completely subjected to the influences of a wholly different environment to which, if it be a plastic species, it may respond.

The meeting of the Tropical Zone with the arm of the South Temperate brought northward by the Humboldt Current, on the coast of northwest Peru, affords an instance of zonal change almost as abrupt as that occasioned by altitude.

The Humboldt Current leaves the shores at Point Pariña and flows northwestward, the coast immediately north of this cape being washed by warmer waters of a southward flowing tropical current. The northern limit of the South Temperate Brown Pelican is marked by that of the Humboldt Current; the southern limit of the Tropical Brown Pelican by that of the warm inshore waters. The two birds obviously represent one another, their breeding-ranges almost meet, the birds themselves actually come together, but intergrades between them are unknown. There is no room for them, in the narrow transitional areas between their respective zones.

Doubtless, both zonal boundaries and zonal life have been affected by glaciation, which, locally, is known to have brought ice 2,000 feet below existing levels. Data on this subject, however, are too inadequate to enable one to form more than a vague conception of the influences exerted by an Ice Age. In any event, such influences would be modifying in their action, and we need not, therefore, consider glaciation as a primary factor in the development of zonal life.

Where an altitudinal fauna is connected with a sea-level equivalent, we have no difficulty in tracing the origin of a large part of its life.

The Subtropical and the humid division of the Temperate Zone, as we have seen, lack such connection, but the arid division of the Temperate Zone and the Paramo Zone possess it, and we find that a large part of their bird-life originated in southern South America. From these colder regions, the Condor, no less than diminutive Sparrows, have extended their range toward the Equator, increasing their altitude with decreasing latitude and thereby remaining in a life-zone similar to that from which they started.

Thus, *Phrygilus alaudinus* inhabits the South Temperate Zone at sea-level in central Chile, and we find it in the Temperate Zone in

Ecuador; while *Phrygilus unicolor* inhabits the Paramo Zone of Chile and also the Paramo Zone of Ecuador. Two Hummingbirds are equally true to their zonal boundaries, *Patagona gigas* being common to the Temperate Zone of Chile and Ecuador; *Oreotrochilus* to the Paramo Zone of both countries.

In Ecuador arid Temperate and Paramo lie side by side. One may pass from one to the other without being aware of the change, but the boundaries are there, even if invisible. One may look in vain for *Phrygilus alaudinus* or *Patagona* in the Paramo or for *P. unicolor* or *Oreotrochilus* in the Temperate. Each true to its own zonal level, travels 2,000 miles or more, but it does not cross the 200 feet that would take it from one zone to another—impressive evidence of the power of those unseen forces which so sharply define the boundaries of altitudinal faunal areas.

The Evolution of Zonal Life.—In examining the results of distributional analyses of Ecuadorean bird-life, one is impressed by the close relation which invariably exists between the extent of environmental change and the degree of differentiation exhibited.

Where the environment remains the same, the fauna shows comparatively little change; where the environment is altered or a new environment is offered, evolution proceeds at a correspondingly rapid pace.

The facts on which this statement is based are presented in some detail in the treatment of the life of each zone, but certain of them may be repeated or more fully expressed here.

It has been shown that the Subtropical Zone, which in the earlier period of Andean history occupied the summit and adjoining slopes of the mountains, was later separated by continued uplift into eastern and western divisions. This separation in Ecuador is complete and, at the present time, there is believed to be no interchange of life, direct or indirect, between the two divisions of the zone. From the Subtropical Zone as a whole in Ecuador, 141 genera are known, of which 116, or 81 per cent, are common to both divisions. The elevation which isolated these divisions gave rise to the Temperate Zone. The humid or forested portion of this zone adjoins the upper boundary of the Subtropical Zone, from which its life was derived. In spite, however, of this proximity and the fact that the divisions of the Subtropical Zone were segregated before the humid Temperate Zone was fully developed, of 64 genera, 39, or only 61 per cent, are common to both Subtropical and humid Temperate Zones, while, as we have just seen, 81 per cent are common to the eastern and western divisions of the Subtropical Zone. In other words, even when the life of one zone has been derived from that of an adjoining zone their faunas differ more widely than those of separated

areas belonging in the same zone. From which it seems evident that change of environmental conditions without isolation is more productive of evolution than isolation without change of conditions.

To illustrate this fact further, I leave the Andes for a moment to call attention to the relations of the avifauna of the island of Trinidad to that of the mainland. Separated from the continent, probably not later than the Pleistocene Age, its fauna has had the complete isolation of insularity, but with no zonal change. In default of such change, not one distinct species has as yet developed, and most of the subspecies described are so slightly differentiated that they would not be recognized, if their habitat did not set them apart as island forms.

Continuing our examination of distributional analyses, 45 per cent of subtropical genera are zonal, but of humid Temperate Zone genera, 70 per cent are zonal. Remembering that the genera of both the Subtropical and humid Temperate Zones have been derived from the tropics, these figures evidently give expression to the fact that the differences between a temperate and tropical environment are greater than those between a subtropical and tropical environment.

Again, it appears that while 33 per cent of humid Temperate genera are endemic, only 14 per cent of arid Temperate and Paramo genera are endemic. Here the facts indicate that the environmental change experienced in going from the Subtropical to the neighboring humid Temperate Zone is greater than that which exists between the upper Andean zones and their sea-level equivalent in the South Temperate, distant 2,000 miles or more.

It is, however, in a comparison of the life of the Subtropical and humid Temperate with that of the humid Tropical Zone that we shall find the most convincing evidence of the power of environment.

It appears that the elevation of the Andes has severed the humid Tropical Zone in South America, leaving it in two disconnected areas.

The trans-Andean area is too vast to be considered in this connection, but the cisandine area lying chiefly in Ecuador and Colombia has become sufficiently segregated to form a well-marked faunal unit—the Colombian-Pacific Fauna. While the life of this fauna in the main agrees with that of tropical Transandea, it possesses 186 endemic races and 58 endemic species, all of which we may believe have been evolved since the fauna to which they are restricted, and of which they are a product, came into existence. Here, then, is a faunal area within the Tropical Zone, but which, like altitudinal zones, has apparently been created by the elevation of the Andes. We may therefore fairly compare what we believe to be its post-Andean fauna with that of the two

Andean life zones, Subtropical and humid Temperate, which have arisen from the humid Tropical Zone since the Colombian-Pacific Fauna was formed.

That conditions in this fauna are favorable for the development of new forms is apparent from the number which characterize it. Nevertheless, and here we have the significant fact in this comparison, the Colombian-Pacific Fauna has only 4 endemic genera, while in Colombia and Ecuador the altitudinal zones of humid Tropical origin contain 67 endemic genera, all of which are believed to have been evolved since the Andes attained subtropical heights, and consequently since the formation of the Colombian-Pacific Fauna.

It can, I think, be shown that the radically changed topography which has partially isolated the Colombian-Pacific Fauna has brought with it new environmental influences—for example, heavier rainfall—but it also seems clear that they are far less effective in promoting evolution than those due to increase in altitude.

I feel, therefore, that the facts in this case, as well as in those previously cited, eloquently demonstrate the close relation existing between environmental change and degree of differentiation. Before leaving this subject, however, I should like to approach it from a different angle. Having spoken of the influence of environment on the birds of Ecuador as a whole, let us now examine its effects on certain groups of birds. I shall take for this purpose the Hummingbirds (*Trochilidæ*) and the true Antbirds (*Formicariinæ*). Both are large, dominant groups of the American tropics. Both are plastic and not limited in their habitat requirements, inhabiting alike humid and arid areas, luxuriant forests, or xerophytic scrub. But they differ widely in temperament and power of flight. The Hummingbirds are active, strong of wing, mobile, in places migratory, aggressive, adaptable, in short, of the stuff of which pioneers are made. The Antbirds are retiring, sedentary, weak of wing, non-migratory, in short, not venturesome, stay-at-home birds.

While the Hummingbirds, latitudinally, have their center of abundance in the tropics, they are distributed from Patagonia to Hudson Bay and Alaska, including the West Indies.

The Antbirds are practically confined to the tropics and are unknown in the West Indies.

In conformance with the law that wide latitudinal implies extended altitudinal range, Hummingbirds in Ecuador are found from sea-level to snow-line, while the Antbirds are largely restricted to the tropics.

The actual figures are as follows: Hummingbirds, total, 147; tropical, 66; zonal, 81. Antbirds, total, 90; tropical, 76; zonal, 14.

It thus appears that 55 per cent of Ecuador's Hummingbirds exist above the Tropical Zone, while only 15 per cent of her Antbirds are zonal. It is, therefore, among those birds which seek new environments that the greatest differentiation occurs. Within the tropics, Antbirds are more numerous than Hummingbirds, but the temperament which has induced Hummingbirds to explore Andean heights and to make their homes at the border of perpetual snow has resulted in more than doubling their numbers since these mountains arose.

So I might continue to present evidence illustrating the dependency of evolution on change of environment, but I may sum up my case by offering the entire avifauna of Ecuador as an exhibit. What more adequate tribute to the power of environment can one ask than to discover within this comparatively small but marvelously diversified country one-fourth the birds of all South America and one-twelfth those of the entire world!

In the face of these facts, of the significance of which prolonged field experience has convinced me, I am asked to believe "that chance mutation is quite sufficient to account for all organic evolution,"¹ that "environment permits and directs evolution but does not cause it."

Environment, we are told, cannot affect the germ plasm; that its influence therefore is not hereditary; and that only those mutational variations arising within the chromosome can be transmitted.

I am so far from denying the existence of mutation that I have attempted to prove its occurrence in birds.² I realize that, wholly independent of change of environment, variations may and do occur, but I maintain that the physiological agencies which give rise to these variations are enormously stimulated by the action of environmental forces, and that nothing is more effective in promoting evolution than to subject an organism to a new set of environmental influences.

It may be argued that change in environment merely introduces a new set of selective factors which, acting on variations arising wholly independent of the change, perpetuate those that are desirable.

That is, the same variations might have arisen in the old environment and not have been selected, but proving favorable in the new environment they have survived. But I defy anyone to detect the differences between a habitat in the humid Tropical Zone and one in the Subtropical Zone which would give selection the material to work with. The essence of both habitats is luxuriant forest-growth in which color,

¹ 'Mutation and Environment,' by Wesley Roswell Coe, in 'Organic Evolution and Environment,' Yale University Press, 1925, p. 117.

² 'Mutation Among Birds in the Genus *Buarremon*,' Bull. Amer. Mus. Nat. Hist., XLVIII, 1923, pp. 243-278.

assured of protection because of its comparative inconspicuousness or because of ever-present opportunity for concealment, runs riot. In general facies the dominant color characters of both tropical and subtropical birds are not unlike. Hummingbirds, Trogons, Toucans, Tanagers, and other brilliantly colored birds abound in each zone, not because of the characters which distinguish the zones, but because both zones possess the luxuriant forest-growth which, as a rule, is essential to the existence of brightly plumaged birds, just as a coral reef is essential to the existence of brightly colored fishes.

If the change from the Tropical to the Subtropical Zone were a mere change of forest habitat, it would not, in my belief, have produced those differences in zonal faunas which we observe. So far as the protective value of immediate surroundings is concerned, most subtropical birds could, I believe, live just as well in the humid tropics, and *vice versa*.

It is when environment acts through climate or through food, for example, that it apparently produces a change on the organism in which selection has no part, though it must later determine whether such change is desirable.

Whether environment originates or whether, in the language of the day, it merely 'starts something' by arousing latent potencies within the germ, I do not pretend to say. But the fact remains that organisms do respond to change and, furthermore, that certain conditions, for example, humidity and aridity, almost invariably provoke the same type of response. Whether the changes are favorable or unfavorable, it remains for environment to decide.

I believe, therefore, that first, as well as last, evolution is largely the product of environment, particularly of change of environment, with its more or less direct action on the organism and its rejection or retention of the resulting characters.

PART II

A DISTRIBUTIONAL LIST OF THE BIRDS OF ECUADOR

Classification and Nomenclature

Treatment of Genera

Treatment of Subspecies

Number of Species Included

List of Ecuadorean Birds Described as New

List of Families with the Numbers of Species by Which Each is
Represented in Ecuador

North American Migrants

Scope of Data Presented

List of Species and Subspecies

Gazetteer

Bibliography

Addenda

Index

Classification and Nomenclature.—This is, primarily, a book on distribution, not a work on classification. My first object has been to make the data it contains easily accessible rather than to give expression to the latest views on taxonomy and nomenclature. I have, therefore, continued to follow the order of arrangement employed in my companion work on the birds of Colombia, which is that of Brabourne and Chubb's 'Birds of South America,' adopting only such changes as seem to me to be absolutely necessary. As for names, I confess to a profound lack of interest in questions of nomenclature, as such, and not only have made no attempt to determine whether currently accepted names are 'right' or 'wrong,' but have carefully passed by on the other side when I thought there was any danger of awaking the sleeping nomenclatural dog. I do not propose to discuss the desirability of so-called 'revisions' of names, and merely express my belief, based on forty years' experience, in the futility of the attempt to reach definite conclusions in cases where the evidence is, and always will be, inconclusive, and the verdict will be an expression of opinion subject to change by the next 'authority.'

I am in favor of a statute of limitations or a perpetually 'closed season' on synonymy hunting. I will advocate the principles of *auctorum*

plurimorum or *nomina conservanda* or any others that will prevent the ceaseless tinkering with names that defeats the very ends it is alleged to serve. Meanwhile, I have aimed to use names which will be intelligible and which, within the limitations of nomenclatural procedure, will indicate the relationships of the organisms to which they are applied.

Treatment of Genera.—So far as genera are concerned, I still emphatically hold the views presented in my work on Colombian birds (pp. 171–175). I have, however, accepted the conclusions reached by my colleagues, W. DeW. Miller and Ludlow Griscom, in their forthcoming work on the birds of Nicaragua, in regard to the generic status of certain groups represented in both that country and Ecuador. I have also followed Dr. Hellmayr in his monographic treatment of the Formicariidæ, Furnariidæ, and Dendrocolaptidæ, based on practically all the known forms of these families.

Treatment of Subspecies.—As in my volume on Colombian birds, the fundamental principle here adopted in the treatment of subspecies is to consider each case on its merits. It is not necessary, therefore, to repeat what I there wrote. Meanwhile, however, I have published¹ more detailed views on this subject which were summarized as follows:

Summary of Criteria Which in Default of Specimens May Aid Us in Reaching a Conclusion Regarding the Status of Representative Forms:

1. The nature of their differentiations; whether they are positive or comparative in character.
2. The degree of difference attained.
3. The relations in space and time of their ranges; whether they are connected or separated, and, if separated, the extent and nature of such separation.
4. The relations in their respective ranges of the environmental factors which appear to be responsible for the differentiations exhibited, whether or not they merge.
5. The relative plasticity of the species and of the group to which it belongs.
6. Relative adaptability in habit permitting continuity of range under a widely varying environment, as with the Song Sparrows (*Melospiza*), for example.
7. Information to be derived from the study of other birds and other organisms in the areas concerned.
8. Probable lines of descent with relation to the existence or non-existence of a common ancestor.

¹ 'Criteria for the Determination of Subspecies in Systematic Ornithology,' *The Auk*, XLI, 1924, pp. 17–29.

9. Similarity or divergence in habit and in voice.

Finally, while admitting that the relationships of representative forms can be learned conclusively only by the study of adequate collections from throughout their ranges, I nevertheless maintain that the experienced systematist employing the criteria here mentioned can, in most cases, more correctly predicate their status than if he were to act in conformance with certain rules. And I am convinced that the systematist who will thus treat his specimens as exponents of their environment will make a far more valuable contribution to biology than he who regards them merely as objects to be classified and named.

Number of Species Included.—My work on Colombian birds included only the 1,285 species and subspecies of which, with but few exceptions, specimens were collected by our expeditions to that country.

Recorded knowledge of the Ecuadorean avifauna is so much more complete and accurate than that which was available concerning the birds of Colombia that it has seemed desirable to supplement our own work with that of our predecessors. For example, in Colombia (exclusive of the Santa Marta region) we raised the known number of Antbirds (Formicariidæ) from 75 to 124, an increase of 65 per cent¹; while, in Ecuador, we have added only 11 forms to the 104 of this family already known from the country, an increase of only about 10 per cent.

In both Colombia and Ecuador, thanks to the skill and activity of native collectors, the Hummingbirds are doubtless better known than any other group. Nevertheless, in Colombia we secured 11 species not before recorded, but in Ecuador we have taken but 1, *Cyanolesbia cælestis æthereus*, and this from a before unexplored part of the country.

While the recent discovery of *Cichlopsis chubbi*, at so well-worked a locality as Mindo, tells us that even in western Ecuador the wealth of this ornithological treasure-house is far from exhausted, it is believed that the 1,357 species and 151 subspecies here included fairly represent the Ecuadorean avifauna. The total of 1,508 is doubtless a larger number of birds than has before been recorded from an area of approximately similar size.²

Of described species we have added 61 to the Ecuadorean list, about one-third of them being marine forms.

During the progress of our work on Ecuadorean birds, I have described as new, 3 genera, 24 species, and 62 subspecies. About one-half of these are actual discoveries; the remainder owe their existence to the study of a larger number of specimens than have before been available.

¹See 'Distribution of Bird-Life in Colombia,' p. 180.

²The geographic boundaries covered by this paper are defined in the Introduction.

Of the total 86 proposed forms, the name of one¹ proves to have been preoccupied, while three² had been previously described. The remaining 83 are recognized in the following pages.

LIST OF ECUADOREAN BIRDS DESCRIBED AS NEW

- 22b. *Crypturus soui nigriceps*
- 102a. *Penelope barbata*
- 138a. *Odontophorus parambæ canescens*
- 189b. *Leptotila ochraceiventris*
- 206a. *Oreopeleia bourcieri subgrisea*
- 427a. *Jacana scapularis*
- 625a. *Rupornis magnirostris zamoræ*
- 669a. *Falco fusco-cærulescens pichinchæ*
- 704a. *Ciccaba æquatorialis*
- 717a. *Speotyto cunicularia punensis*
- 737a. *Ara ambigua guayaquilensis*
- 774a. *Pyrrhura albipectus*
- 861a. *Pionus corallinus mindoensis*
- 928a. *Chordeiles acutipennis æquatorialis*
- 961a. *Setopagis anthonyi*
- 1379a. *Cyanolesbia cœlestis æthereus*
- 1457b. *Trogonurus temperatus*
- 1470a. *Curucujus melanurus pacificus* [= *T. m. mesurus* Cab. & Hein.]
- 1492a. *Neomorphus salvini æquatorialis*
- 1720a. *Veniliornis dignus baezæ*
- 1786a. *Picumnus parvistriatus*
- 1870a. *Thamnophilus unicolor longicaudus* [= *T. u. grandior* Hellm., Field Mus. Pub. 223, 1924, p. 84; *longicaudus* being preoccupied by *Th. longicaudus* Vieillot]
- 1915a. *Thamnophilus zarumæ*
- 1935b. *Dysithamnus mentalis napensis*
- 1944a. *Dysithamnus punctipectus*
- 1977a. *Myrmopagis ornata saturata*
- 1988a. *Myrmotherula longipennis zimmeri*
- 1989a. *Myrmotherula sunensis*
- 2066a. *Pyriglena pacifica*
- 2113a. *Myrmoderus griseiceps*
- 2156a. *Formicarius analis zamoræ*
- 2164a. *Chamæza brevicauda punctigula*
- 2194a. *Grallaria hypoleuca castanea*
- 2199a. *Grallaria ruficapilla connectens*
- 2201a. *Grallaria watkinsi*
- 2213a. *Grallaricula flavirostris mindoensis*
- 2213b. *Grallaricula flavirostris zarumæ*
- 2218a. *Apocryptornis lineifrons*

¹ *Thamnophilus unicolor longicaudus*.

² *Curucujus melanurus pacificus*, *Automolus celicæ*, and *Cyclarhis nigrirostris mindoensis*.

- 2320a. *Synallaxis brachyura griseonucha*
2363a. *Cranioleuca curtata griseipectus*
2397a. *Siptornis wyatti æquatorialis*
2408b. *Pseudocolaptes boissonneaui intermedianus*
2432a. *Hylocryptus erythrocephalus*
2440a. *Automolus celicæ* [= *Anabazenops ruficollis* Tacz.]
2479a. *Thripadectes virgaticeps sumaco*
2494a. *Xenops acutirostris*
2501a. *Sclerurus albigularis zamoræ*
2555a. *Xiphorhynchus chunchotambo napensis*
2595a. *Lepidocolaptes souleyti esmeraldæ*
2607a. *Campylorhamphus trochilirostris napensis*
2662a. *Ochthoeca frontalis orientalis*
2751a. *Platytricus albogularis zamoræ*
2771a. *Ramphotrigon fuscicauda*
2793a. *Euscarthmus latirostris caniceps*
2888a. *Mionectes striaticollis viridiceps*
2937a. *Tyranniscus chrysops albigularis*
2985a. *Myiozetetes similis pacificus*
3018a. *Myiobius atricaudus portovela*
3069a. *Myiochanes fumigatus zarumæ*
3174c. *Manacus manacus maximus*
3202a. *Tityra semifasciata esmeraldæ*
3283a. *Euchloris frontalis squamipectus*
3340b. *Neochelidon griseiventris*
3346a. *Petrochelidon rufocollaris æquatorialis*
3415a. *Pheugopedius sunensis*
3485a. *Mimus longicaudatus platensis*
3504a. *Cichlopsis chubbi*
3579a. *Pachysylvia semibrunnea leucogastra*
3611a. *Cyclarhis nigristrostris mindoensis* [= *Cyclorhis atristrostris* Sel.]
3619a. *Compsothlypis pitiayumi alarum*
3669b. *Basileuterus tristriatus bæzæ*
3671a. *Basileuterus trifasciatus nitidior*
3673a. *Basileuterus castaneiceps orientalis*
3681a. *Basileuterus fraseri ochraceicrista*
3777a. *Catamenia analoides söderstromi*
3789a. *Volatinia jacarini pacifica*
3797a. *Pitylus nigriceps*
3849a. *Sycalis luteiventris bogotensis*
3856a. *Myospiza aurifrons zamoræ*
3964a. *Arremon aurantiistrostris santa-rosæ*
3989a. *Atlapetes celicæ*
4011a. *Buarremon assimilis nigrifrons*
4040a. *Diglossa albilatera schistacea*
4165a. *Tangara punctata zamoræ*
4263a. *Compsocoma somptuosa alamaris*
4265a. *Compsocoma somptuosa bæzæ*

LIST OF FAMILIES WITH THE NUMBER OF SPECIES AND SUBSPECIES
BY WHICH EACH IS REPRESENTED IN ECUADOR

	Species	Sub-species		Species	Sub-species
Tinamidae	14	2	Momotidae	4	3
Cracidae	15	2	Caprimulgidae	18	
Odontophoridae	8	1	Micropodidae	7	2
Columbidae	24	2	Trochilidae	132	16
Opisthocomidae	1		Trogonidae	12	5
Rallidae	19		Cuculidae	16	1
Heliornithidae	1		Capitonidae	7	1
Podicipedidae	3		Ramphastidae	19	
Procellariidae	9		Galbulidae	8	
Laridae	14		Bucconidae	18	
Thinocorythidae	2		Picidae	33	4
Charadriidae	35	1	Hylactidae	7	
Jacanidae	1		Conopophagidae	5	
Oedienemidae	1		Formicariidae	101	13
Aramidae	1		Furnariidae	64	11
Eurypygidae	1		Dendrocolaptidae	25	6
Psophidae	1		Tyrannidae	142	18
Ibididae	3		Pipridae	23	4
Plataleidae	1		Cotingidae	49	3
Ciconidae	1		Phytotomidae	1	
Ardeidae	14		Hirundinidae	13	1
Anhimidae	1		Sylvidae	5	1
Phoenicopteridae	1		Troglodytidae	26	6
Anatidae	12		Cinclidae	1	
Phalacrocoracidae	2		Mimidae	1	1
Anhingidae	1		Turdidae	19	3
Sulidae	4		Vireonidae	14	4
Fregatidae	1		Mniotiltidae	26	6
Phaethontidae	1		Motacillidae	1	
Pelecanidae	1		Catamblyrhynchidae	1	
Cathartidae	5		Fringillidae	72	3
Falconidae	61	6	Coerebidae	22	4
Bubonidae	22	1	Tersinidae	1	
Psittacidae	38	1	Tanagridae	106	14
Steatornithidae	1		Icteridae	28	5
Alcedinidae	5		Corvidae	5	

Total number of species 1357

Total number of subspecies 151

Grand total 1508

North American Migrants.—With the exception of *Elanoides forficatus forficatus*, which may nest in Central America, all the remaining

66 species of North American birds here included (35 water- and 31 land-birds) may, I think, be assumed to be migrants to Ecuador.

An examination of this list leads to essentially the conclusions presented in my work on Colombian birds (p. 184) in a similar connection. A distributional analysis on the basis of breeding-range gives the following results:

1. Arctic and northern North America	21
2. Temperate North America	13
3. Interior of North America	3
4. Eastern North America	21
5. Western North America	8

The first group, or extreme northern birds, is composed almost entirely of shore-birds; the second, of species like *Porzana carolina*, *Pandion haliaetus*, and *Hirundo erythrogaster* which are found throughout temperate North America. *Larus franklini*, *Steganopus tricolor*, and *Limosa fedoa* form the third group. The fourth group is largely restricted to land-birds, chiefly Warblers, which like *Protonotaria citrea*, *Dendroica caerulea*, *D. fusca*, *Oporornis philadelphia*, *Wilsonia canadensis*, *Zamelodia ludoviciana*, and *Piranga erythromelas* are confined, when breeding, to eastern North America.

Of the fifth group, only two, *Aphriza* and *Heteractitis*, both littoral, are distinctively western, the others being chiefly western forms of North American species like *Limnodromas griseus*, *Catoptrophorus semipalmatus*, *Helodromas solitarius*, *Ereunetes mauri*, *Empidonax traillii*, and *Myiochanes richardsoni* which migrate, and, in some cases, breed east of the Rockies.

This analysis, therefore, merely confirms the already well-established fact (to which Baird¹ first called attention) that it is the birds of the eastern rather than of the western United States which migrate to South America. The latter find favorable and comparatively near winter homes in the neighboring areas of Mexico and adjoining portions of Central America. The winter haunts of the former are, on the whole, directly south of their summer homes, and are, therefore, most easily reached by a southward flight over the Caribbean.

Our discovery that large numbers of boreal breeding species of shore-birds pass the summer on the coast of Ecuador, and that the individuals taken were barren, is evidence in support of the theory² that

¹ 'The Distribution and Migration of North American Birds.' Am. Journ. Sci., XLI, pp. 78-90; 184-192; 339-347.

² Chapman, 'Remarks on the Origin of Bird Migration,' TheAuk, 1894, pp. 12-17.

the impulse to return to the breeding nesting-place is physiological and connected with the seasonal development of the sexual organs. In default of such development, the bird is not prompted to migrate and remains in its winter range.

The same theory may be advanced to account for the presence of *Sterna hirundo*, *Querquedula discors*, *Buteo platypterus*, *Falco columbarius*, and *Setophaga ruticilla* in Ecuador in summer. At the best, barren birds are doubtless comparatively rare. Forest-inhabiting species are more widely distributed and far more difficult to observe than those which frequent shores, facts which may account for our failure to discover barren individuals among the smaller land-birds.

Our records show that some migrants linger as late as May 10 (*Dendroica fusca*) and return to Ecuador as early as August 9 (*Wilsonia canadensis*) and August 10 (*Dendroica caerulea*), showing how short a time is passed on the breeding-ground.

Excluding shore-birds from our consideration, and it is evident that in some instances, at least, North American migrants frequent eastern rather than western Ecuador. For example, all our 44 specimens of *Wilsonia canadensis* and all existing records of this species are from eastern Ecuador. *Dendroica fusca* and *Hylocichla ustulata swainsoni*, on the other hand, are apparently common in both eastern and western Ecuador.

In determining the altitudinal range of these winter visitants, care should be taken to exclude records made during the season of migration when the bird may not be in its true winter home. With this restriction, our information, so far as it goes, confirms the conclusion reached in regard to winter visitants in Colombia, namely, that their range "is not confined by the zonal boundaries which exercise so strong an influence over the distribution of permanently resident species."¹

Thus, *Myiochanes richardsoni* and *Wilsonia canadensis* are found in both the tropics and subtropics, *Dendroica fusca* in the Subtropical and Temperate Zones, and *Hylocichla ustulata swainsoni*, *Dendroica aestiva*, *Setophaga ruticilla* and *Zamelodia ludoviciana* range from the Tropical to the Temperate Zone.

List of North American Migrants Found in Ecuador

- 238. *Porzana carolina*: January, February, March.
- 318. *Hydrochelidon nigra surinamensis*: February.
- 323. *Sterna hirundo*: July, November.
- 323a. *Sterna paradisæa*: September.

¹ 'Distribution of Bird-Life in Colombia,' p. 184.

342. *Larus franklini*: December.
343. *Larus atricilla*: January, February, March, December.
362. *Arenaria interpres morinella*: February, November, December.
374. *Squatarola squatarola*: February, July, November, December.
376. *Aphriza virgata*: September.
379. *Oxyechus vociferus vociferus*: March.
380. *Ægialitis semipalmata*: January, February, December.
390. *Numenius hudsonicus*: January, February, July, September, October.
393. *Limosa fedoa*: October, November.
394. *Limnodromus griseus scolopaceus*: July, August, September, October, December.
395. *Micropalama himantopus*: September.
396. *Catoptrophorus semipalmatus inornatus*: July, November, December.
397. *Totanus melanoleucus*: October.
398. *Totanus flavipes*: February, April, May, June, September, October, November, December.
399. *Helodromas solitarius solitarius*: February, September.
399a. *Helodromas solitarius cinnamomeus*: January, February, March, April, August, September, October.
399b. *Heteractitis incanus*: February, December.
400. *Actitis macularia*: January, April, May, June, July, August, October, November, December.
405. *Tryngites subruficollis*: July.
402. *Bartramia longicauda*: August, September.
403. *Ereunetes pusillus*: October, December.
404. *Ereunetes mauri*: February. October, December.
406. *Calidris leucophæa*: February.
407. *Pisobia minutilla*: March.
408. *Pisobia maculata*: August, October, November.
409. *Pisobia bairdii*: January, February, March, June, October, November.
412. *Canutus canutus*: October.
425. *Lobipes lobatus*: January, December.
426. *Steganopus tricolor*: August.
535. *Querquedula discors*: January, February, March, April, May, July, October, November.
533a. *Marila affinis*: May.
619. *Buteo swainsonii*: January.
630. *Buteo platypterus*: January, February, March, June, July, November, December.
655. *Elanoides forficatus forficatus*: December.
673. *Falco columbarius*: January, February, March, April, May, June, August, October, November, December.
679. *Pandion haliaëtus carolinensis*: January, December.
926. *Chordeiles virginianus virginianus*: October.
1476. *Coccyzus americanus americanus*: March, April.
1478. *Coccyzus erythrophthalmus*: April.
3064a. *Empidonax trailli trailli*: March.
3066. *Empidonax virescens*: January, November.
3067. *Nuttallornis borealis*: January.

3071. *Myiochanes virens*: February, March, November.
 3072. *Myiochanes richardsoni richardsoni*: January, February, March, April, November, December.
 3100. *Tyrannus tyrannus*: October.
 3331. *Hirundo erythrogaster*: January, April, October, November.
 3551. *Hylocichla aliciae aliciae*: March.
 3553. *Hylocichla ustulata swainsonii*: January, March, April, October, November, December.
 3563. *Vireosylva olivacea*: February, March.
 3612. *Mniotilta varia*: November.
 3613. *Protonotaria citrea*: November.
 3620. *Dendroica aestiva aestiva*: February, April, August, November, December.
 3628. *Dendroica cerulea*: January, February, March, August 10.
 3629. *Dendroica fusca*: January, February, March, April, May 10, October, November, December.
 3631. *Dendroica striata*: March, April 10.
 3634. *Oporornis philadelphia*: January.
 3637. *Seiurus noveboracensis noveboracensis*: November, December.
 3647. *Wilsonia canadensis*: January, February, March, April, August 9, October, November, December.
 3648. *Setophaga ruticilla*: February, March, June, October, November, December.
 3710. *Zamelodia ludoviciana*: October, November, December.
 4307. *Piranga rubra rubra*: January, February, April, October, November, December.
 4312. *Piranga erythromelas*: March.
 4468. *Dolichonyx oryzivorus*: Peru, April 4.

Scope of Data Presented.—Under each species in the following pages will be found, when available, the following data:

(1) A reference to the original description with the type-locality. Note that in these references, as well as in all others to original descriptions, whether of names recognized or synonymized, no comma separates the scientific name from that of its author.

(2) References, as a rule, only to original sources of the bird's occurrence in Ecuador, with the locality cited. Note that in these secondary, not original references, a comma separates the scientific name from that of the writer using it. To avoid needless repetition, I have not hesitated to abbreviate both authors' names and references in the belief that, with the aid of the bibliography, both will be readily intelligible.

(3) *Lists of Specimens.*—(a) Those collected by Rhoads in the Philadelphia Academy of Sciences, which I have examined in only a few instances. (b) Those contained in the American Museum, and on which this paper is chiefly based.

(4) *Sequence of Localities Cited.*—With species found throughout

Ecuador, the most northwestern locality represented, is cited first. Thence we proceed southward to the Peruvian boundary, cross to eastern Ecuador and proceed northward. With west Ecuadorean species the first part of this procedure is followed. With species found only in eastern Ecuador, the most southeastern locality is given first when we go northward, while, with tableland forms, the most northern locality is first given, followed by those toward the south. Reference to the map facing page 14 (pl. III) will explain this method of treatment.

(5) *Ranges*.—In order to show the relation between the area occupied by a bird in Ecuador and its entire range, I have given, first, the briefest, most general statement of the latter, followed by a more exact presentation of the former, to which details are added by the enumeration of all the localities in Ecuador from which the species has been definitely recorded and at which (if any) we have taken it.

(6) *General Discussion*.—The abundance of our material and the interest of the problems involved have constantly tempted me to widen the scope of my inquiry. In some instances I have yielded,¹ but exigencies of both time and space have compelled me to confine myself as closely as possible to a bird's status in Ecuador in order to develop my main thesis within a reasonable length of time and within the limits of one volume.

(7) *Measurements*.—Wing measurements are made without flattening the wing. The tail is measured from the insertion of the middle pair of rectrices to the end of the longest one. The culmen is measured from its base (junction of bill with cranium).

(8) Ridgway's 'Color Standards and Color Nomenclature' (published by the author, Washington, D. C., 1912) has been adopted in this work.

(9) *Vernacular Names*.—Excluding North American species and, outside of books, English names exist for but few of the birds of Ecuador. It does not seem desirable to use what I have before called 'machine-made' ones, and I have therefore given common names only with the family headings.

Native collectors in Ecuador have names for most of the birds they encounter, but we have not had an opportunity to compile them or to learn how generally they are in use.

¹ 'The Distribution of the Swallows of the Genus *Pygochelidon*.' Amer. Mus. Novit., No. 30, 1922, pp. 1-15.

'The Distribution of the Motmots of the Genus *Momotus*.' Bull. Amer. Mus. Nat. Hist., XLVIII, 1923, pp. 27-59.

'Mutation Among Birds in the Genus *Buarremon*.' Bull. Amer. Mus. Nat. Hist., XLVIII, 1923, pp. 243-278.

'The Relationships and Distribution of the Warblers of the Genus *Compsothlypis*: A Contribution to the Study of the Origin of Andean Bird-Life.' The Auk, Vol. XLII, No. 2, 1925, pp. 193-208.

DISTRIBUTIONAL LIST OF SPECIES AND SUBSPECIES.¹

ORDER TINAMIFORMES.

FAMILY TINAMIDÆ. TINAMOUS.

(4) *Tinamus tao* Temm.

Tinamus tao TEMM., Pig. et Gallin., III, 1815, pp. 569, 749 (Pará, Brazil); S. & F., 1900, p. 51 (San José).

RANGE.—Amazonia and Guiana west to Colombia.

Known in Ecuador only from the Amazonian Tropical Fauna. It has, however, been found in the Subtropical Zone of the western Andes of Colombia² and may, therefore, occur in western Ecuador.

We have no Ecuadorean specimens.

(7) *Tinamus major ruficeps* Scl. & Salv.

Tinamus ruficeps SCL. & SALV., Nomen. Av. Neotr., 1873, p. 162 (Rio Napo, Ec.); S. & F., 1900, p. 51 (Valle del Rio Santiago); L. & R., 1922, p. 13 (Rio Napo).

Rio Suno, 2 ♂, 2 ♀; below San José, 1 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, Amazonia to Mexico; the race, upper Amazonia to northern Colombia.

(9) *Tinamus major latifrons* Salvad.

Tinamus latifrons SALVAD., Cat. Bds. B. M., XXVII, 1895, p. 506 (Balzar, Ec.); S. & F., 1900, p. 51 (Rio Peripa); Hart., 1902, p. 599 (Paramba; Bulín; Lita); Men., 1911, p. 3 (Santo Domingo).

Tinamus fuscipennis, SALV. & GODM., Biol. Cent. Am., III, 1904, p. 451 (N. Ecuador).

Tinamus robustus inexpectatus BRAB. & CHUBB, Ann. & Mag. Nat. Hist., (8) XII, 1913, p. 578 (N. Ecuador); L. & R., 1922, p. 13 (near Guala; Mojanda Mts., "9,000 ft.," altitude probably incorrect).

Below Guala, 1 ♂.

¹ The numbers in parentheses preceding each species are those of Brabourne and Chubb's 'Birds of South America.' When this number is followed by a letter, it indicates that the species in question is not contained in Brabourne and Chubb's work.

² Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 187.

RANGE.—Tropical Zone; Colombian-Pacific Fauna from at least Balzar, Ec., north to Barbacoas, Col.

Examination of the types of *Tinamus robustus inexpectatus* Chubb and of *T. m. latifrons* Salvad. in the British Museum, as well as of specimens from Paramba, Rio Bogotá, and Bulun, Ecuador, at Tring, convinces me that *inexpectatus* and *latifrons* are one and the same thing. Indeed, since the Mexican *robustus*, like *latifrons*, is a race of the widely distributed *major*, it is not likely that two forms of the same species would be found in the same fauna. Specimens from the same region have the crown either wholly chestnut, wholly slate-color, or one-half one of these colors and one-half the other.

(11) *Tinamus guttatus* Pelz.

Tinamus guttatus PELZ., Verh. zööl.-bot. ges. Wien, 1863, p. 1126 (Pará); SALVAD., Cat. Bds. B. M., XXVII, 1895, p. 508 (Sarayacu—Buckley); L. & R., 1922, p. 13 (Rio Napo).

Below San José, 1 ♂.

RANGE.—Tropical Zone, Amazonia.

Much paler below than a specimen from Santarem.

(12) *Nothocercus julius julius* (Bonap.)

Tinamus julius BONAP., Compt. Rend., XXXVIII, 1854, p. 663 (Colombia); SCL., 1858a, p. 176 (Napo).

Nothocercus julius, B. & T., 1885, p. 112 (San Rafael); S. & F., 1900, p. 51 (Pun); L. & R., 1922, p. 13 (below Lloa; Algonquinche; Maspa).

Nothocercus julius salvadorii CHUBB, Bull. B. O. C., XXXIII, 1914, p. 95 (Ecuador); 1919, p. 7 (Pichincha, Ec., 11,000 ft.).

Nothocercus julius julius, CHAPM., Am. Mus. Novit., 18, 1921, pp. 2, 3.

Mojanda Mts. (9,000 ft.), 1 ♂, 2 ♀, 1 ?; above Baeza, 3 ♂, 1 ♀; 'Ambato,' 1 ?.

RANGE.—Humid Temperate Zone: the species, Ecuador to western Venezuela; the race, south at least to San Rafael, above Baños, north in the Central and East Andes of Colombia.

Four specimens from the Mojanda Mountains and three from above Baeza agree with two from the Central Andes of Colombia (Almaguer and Laguneta), and all are more olivaceous above but otherwise essentially like a specimen from Bogotá. A specimen received through Ambato, and doubtless from the eastern Andes above Baños (whence Berlepsch and Tazanowski record this species), is somewhat darker than the Bogotá bird, but nearer it than to those from the Mojanda

range. The authors mentioned comment on the darker color of specimens from the Baños region.

Nothocercus julius salvadorii Chubb is known only from the type in the British Museum, labeled by Verreaux 'Equateur'; but since we know that a bird essentially true *julius* occurs in both the eastern and western Andes, it is not probable that the type of *salvadorii* came from Ecuador. The Colombian range of the species is also well covered by examples which unquestionably are true *julius*. The apparent absence of a habitat led to a re-examination of Chubb's type and the conclusion that "*salvadorii*" is based on individual variation.

(14a) *Nothocercus bonapartei plumbeiceps* Lönn. & Rendh.

Nothocercus plumbeiceps LÖNN. & RENDH., Arkiv. für Zoöl., Band 14, No. 25, 1922, p. 13 (Baeza, road to Napo, 5,500 ft., Ec.).

Nothocercus bonapartei, B. & T., 1885, p. 112 (Machay).

Above Baeza, 1 ♂, 1 ♀; below Baeza, 1 ♂.

RANGE.—Subtropical Zone: the species, Ecuador to Costa Rica; the race, eastern Ecuador south to Machay.

Our specimens are topotypes of *plumbeiceps* and agree in size and in color with the description of that form which, however, is evidently a representative of *bonapartei* rather than of *nigricapillus*. Indeed, this is doubtless the form identified as *bonapartei* by Berlepsch and Taczanowski. Our three specimens agree with true *bonapartei* in the color of the throat, and differ from it only in their generally darker coloration, particularly of the upperparts.

I refer to *N. nigricapillus*, which was described from an unknown locality, an immature bird from Locotal (5,800 ft.), Dept. Cochabamba, Bolivia. This specimen agrees with the description and plate of that species in the Catalogue of Birds in the British Museum (XXXII, p. 511, pl. viii) in having the throat white, and, as in *N. julius*, the primaries are unmarked, whereas in *plumbeiceps* and *bonapartei* the primaries are strongly marked with rusty.

This genus has heretofore not been recorded from south of Ecuador, and its known range is greatly extended by our discovery of it in Bolivia. It remains to be taken in Peru.

(16a) *Crypturus macconnelli* Brab. & Chubb

Crypturus macconnelli BRAB. & CHUBB, Ann. & Mag. Nat. Hist., 1914, p. 320 (Bonasica, B. G.).

Rio Suno, 3 ♂, 1 ♀.

RANGE.—Tropical Zone; Cayenne to eastern Ecuador.

The plate in Chubb's 'Birds of British Guiana' (Vol. I, Pl. 1, fig. 1) well shows the characters of this bird. There are 15 specimens of it from British Guiana in the British Museum, and I have also examined others in the Carnegie Museum from Cayenne and in the Penard collection from Surinam. Of the bird which I take to be *cinereus* Gmel., (fig. 2 of Chubb's plate) the British Museum contains two specimens from Cayenne, two from Takatu, B. G., one from Santa Cruz and one from Iquitos, eastern Peru. Both species, therefore, occur in Cayenne and since it would doubtless be impossible to decide definitely on which one Gmelin based the name *cinereus*, we may accept Mr. Chubb's ruling calling the browner bird *cinereus*, the blacker one *macconnelli*. While our Ecuadorean birds have not been compared directly with British Guiana examples, I examined both series within a period of ten days.

(17) *Crypturus berlepschi* Roths.

Crypturus berlepschi ROTHS., Bull. B. O. C., VII, 1897, p. v (Cachabé, Ec.); HART., 1898, p. 505 (Cachaví); 1902, p. 600 (Lita; Bulún; Carondelet).

RANGE.—Tropical Zone; Colombian-Pacific Fauna, from at least northwestern Ecuador to Baudo, Col.

A very distinct species nearly uniform fuscous in color. The almost suffused rufescent markings in the ventral region suggests that it may be a highly saturated form of *Crypturus macconnelli*. We have only Colombian specimens.

(21) *Crypturus castaneus* (Scl.)

Tinamus castaneus SCL., P. Z. S., 1857, p. 277 (Bogotá).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone; eastern Colombia and eastern Ecuador.

Agrees with the description and plate of the type in the Catalogue of Birds in the British Museum (XXVII, p. 521, pl. ix), at the time the only specimen known. This is evidently a representative, and, perhaps, only a race of *C. obsoletus*. (See, in this connection, Tacz., Orn. Pér., III, p. 296.)

(22a) *Crypturus soui harterti* Brab. & Chubb

Crypturus soui harterti BRAB. & CHUBB, Ann. & Mag. Nat. Hist., 1914, p. 321 (Vaqueria, Ec.).

Crypturus sp., B. & T., 1883, p. 577 (Chimbo).

Crypturus pileatus, B. & T., 1885, p. 113 (Yaguachi).

Crypturus pileatus subsp., HART., 1902, p. 599 (Bulón; Vaqueria; Rio Japayo).

Crypturus soui modestus, CHAPM. (part), Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 192; L. & R., 1922, p. 15 (Gualea).

Esmeraldas, 2♂, 4♀; Chone, 1♂, 1♀; Rio Jubones, 2♂; Rio de Oro, 2♂; Naranjo, 1♂; Santa Rosa, 1 juv. Colombia: Dabeiba, 1.

RANGE.—Tropical Zone: the species, Brazil to Central America; the race, western Ecuador northward to northwestern Colombia.

In the light of additional material, including topotypical specimens of *modestus* from Costa Rica, I now conclude that the western Ecuador form of *C. soui* presents average characters, which distinguish Ecuadorean from Central American birds. The former average smaller in size and darker in color. Females, as a rule, are browner, less rufous above. Males are darker, more olivaceous-brown above, the underparts are more dusky, less ochraceous.

(22b) *Crypturus soui nigriceps* Chapm.

Crypturus soui nigriceps CHAPM., Amer. Mus. Novit., No. 96, 1923, p. 1 (Rio Suno, Ec.).

Rio Suno, 4♂, 4♀; below San José, 3♂, 1♀; 'Rio Napo,' 1♂; Zamora, 1♂.

RANGE.—Tropical Zone; eastern Ecuador.

Subspecific Characters.—Darker than any other known race of *Crypturus soui*; nearest *C. s. caquetæ* Chapm. of southeastern Colombia, but male more deeply colored above, the crown blacker; the wing-quills black rather than brown; female darker above than the female of *caquetæ*, crown and wing-quills blacker.

(31) *Crypturus adpersus yapura* (Spix)

Pezus yapura SPIX, Av. Bras., II, 1825, p. 62, pl. 78 (Yapurá and Solimoës). Rio Suno, 1♂.

RANGE.—Tropical Zone: the species, southeastern Brazil and Guiana to upper Amazonia; the race, upper Amazonia.

I have seen no topotypical material. This specimen agrees with one from Colombia.

(38) *Crypturus variegatus salvini* Salvad.

Crypturus salvini SALVAD., Cat. Bds. B. M., XXVII, 1895, p. 537 (Sarayacu, Ec.). Rio Suno, 2♂, 2♀.

RANGE.—Tropical Zone: the species, Amazonia; the race, eastern Ecuador

Comparison of a specimen from southeastern Colombia with the essentially topotypical specimens of *salvini* shows that it is nearer to true *variegatus* than to the Ecuadorean form to which I have erroneously referred it.¹ The Colombian specimen agrees with others from the foot of Mt. Duida, upper Orinoco.

(44) *Crypturus transfasciatus* Scl. & Salv.

Crypturus transfasciatus SCL. & SALV., P. Z. S., 1878, p. 141, pl. xiii (Santa Rosa, Ec.); B. & T., 1884, p. 312 (Guayaquil); S. & F., 1900, p. 51 (Guayaquil); CHUBB, 1919, p. 9 (Guayaquil).

Chone, 3 ♂, 5 ♀; Chongoncito, 2 ♀, 1 ♂ pull., July 11; Santa Rosa, 1 ♀; Arenillas, 1 ♂; Alamor, 1 ♀.

RANGE.—Tropical Zone; Equatorial Arid Fauna from Chone to Paletillas, Perú.

The male differs from the female in having the crown unbarred, in the almost complete absence of bars on the back and rump, in the grayer underparts and comparatively unbarred sides. Immature females have the chest buffy and with black bars. This is essentially the same sexual difference shown by *C. occidentalis*. The specimen described by Salvadori (Cat. Bds. B. M., XXVII, p. 546) from Balzar is obviously a female.

This species is surprisingly near to *C. colombianus* of northern Colombia. Males differ (I have seen no female of *colombianus*) chiefly in the smaller size and grayer underparts of *transfasciatus*. The semi-arid character of the haunts of the Ecuadorean bird makes it improbable that its range extends into the extremely humid region of western Colombia, and, in spite of their close relationship, it seems evident that the ranges of the two birds are widely separated.

(53a) *Nothoprocta pentlandi simonsi* Chubb

Nothoprocta pentlandi simonsi CHUBB, Bull. B. O. C., XXXVIII, 1917, p. 30 (Cajamarca, Perú).

Punta Santa Ana, 1 ♂.

RANGE.—Temperate Zone: the species, northern Argentina to southern Ecuador; the race, northern Peru to southern Ecuador.

After comparison with the type of *simonsi*, a female, I refer this specimen to that form. It differs from *pentlandi*, of which I have a

¹ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 193.

good series, in the slightly grayer lateral margins to the feathers of the upperparts, but chiefly in the ochraceous breast and flanks, the suffusion of ochraceous in the gray of the chest, and the ochraceous spots of this area.

(NOTE.—*Tinamotis pentlandi* Vigors is said by Tschudi to range northward to Ecuador, but I know of no definite record for this species north of the vicinity of Lake Junin, Peru.)

(55) *Nothoprocta curvirostris* Scl. & Salv.

Nothoprocta curvirostris SCL. & SALV., Nomen. Av. Neotr., 1873, pp. 153, 163 (Calacali, Ec.); B. & T., 1884, p. 212 (Cechce); S. & F. 1900, p. 52 (Chaupi; Paramos del Corazon; Cañar; Sigsig); GOODF., 1902, p. 232 (Pichincha, 11,000–13,000 ft.); MEN., 1911, p. 3 (Pichincha); Chubb, 1919, p. 11 (Gorazon [= Corazon], 13,000 ft.); L. & R., 1922, p. 14 (Pichincha, eggs, Oct. 3; Fanlagua; Cotopaxi).

? *Rhynchotis perdix*, SCL., 1860e, p. 97 (Calacali; Puellaro).

Mt. Pichincha, 1 ♂, 1 ♀, 1 juv.; El Corazon, 2 ♀, 3 pull., July; Bestion, 1 ♂.

RANGE.—Paramo Zone of Ecuador.

A distinct species of southern origin which, with its genus, finds its known northern limit on the Paramo of Pichincha.

ORDER GALLIFORMES

FAMILY CRACIDÆ. CURASSOWS, GUANS, CHACHALACAS

(78) *Crax globicera* Linn.

Crax globicera LINN., Syst. Nat., I, 1766, p. 270 ("Brazil").

Crax panamensis HART., 1902, p. 601 (Paramba; Bulón).

Chongon Hills, 1 ♂.

RANGE.—Tropical Zone; Colombian-Pacific Fauna and northward to Mexico

Hartert records a male from Paramba as "exactly like the adult male of *Crax globicera*, but traces of white tips to the rectrices, therefore belonging to *panamensis* or an allied form." Miller and Griscom, however (Am. Mus. Novit., 25, 1921, p. 7) have shown that *panamensis* is not separable from *globicera*. Our one specimen is not fully adult and has the wing only 330 mm. long, whereas the wing in Hartert's male measures 400 mm.

(80) *Crax globulosa* Spix

Crax globulosa SPIX, Av. Bras., II, 1825, p. 50, plls LXV, LXVI ("in sylvis fluminis Solimoens"); SCL. & SALV., P. Z. S., 1870, p. 515 (Rio Napo).

'Napo,' 1 ♂.

RANGE.—Tropical Zone; upper Amazonia.

(83) *Nothocrax urumutum* (Spix)

Crax urumutum SPIX, Av. Bras., II, 1825, p. 49, pl. 62 ("in sylvis paludosis fl. Nigri").

Nothocrax urumutum, L. & R., 1922, p. 15 (near Curaray River).

Rio Suno, 3 ♂, 1 ♀.

RANGE.—Tropical Zone; Amazonia.

(86) *Mitu salvini* Reinh.

Mitu salvini REINH., Vid. Medd. Nat. For. Kjöbenhavn, 1879, p. 5 (e. Ecuador).

Mitua salvini, S. & F., 1900, p. 37 (Valle del Zamora; Valle del Rio Santiago).

Rio Suno, 2 ♂, 2 ♀.

RANGE.—Known only from the Tropical Zone of eastern Ecuador.

(90) *Penelope montagnii montagnii* (Bonap.)

Ortalida montagnii BONAP., Compt. Rend., XLII, 1856, p. 875 ("Colombia" = El Piñon above Fusugasugá, by Chapm.); SCL., 1860a, p. 72 (Chillanes); 1860c, p. 97 (Puellaro).

Penelope montagnii, B. & T., 1884, p. 312 (La Union); GOODF., 1902, p. 229 (w. Pichincha).

Piganta, Mojanda Mts., 1 ♂; Nono, 1 ♀; Pichincha, 1 ?; Rio Pita, 1 ♀.

RANGE.—Humid Temperate Zone: the species, Ecuador to Venezuela; the race, western Ecuador northward into Colombia.

Our specimens are more barred in the rufous areas of abdomen and rump; the throat is less feathered and, with the crown, less margined with whitish than in most Colombian specimens from near Bogotá and Santa Isabel. They can, however, be closely matched by some examples from these localities and are not, in my opinion, deserving of separation. The East Andean form, however, *brookii* of Chubb, appears to be different and is therefore an exception to the rule that Temperate Zone forms are alike on both ranges of the Andes. It is also noteworthy that the Quito race should agree with the one from Bogotá rather than with that which occurs above Baeza.

(90a) *Penelope montagnii brooki* Chubb

Penelope brooki CHUBB, Bull. B. O. C., XXVIII, 1917, p. 5 (Baeza, Ec.; type examined); Ibis, 1919, p. 15 (Baeza).

Ortalia montagnii, SCL., 1858a, p. 76 ("Napo"); 1858c, p. 556 (Matos).

Penelope montagnii, B. & T., 1885, p. 112 (San Rafael); S. & F., 1900, p. 37 (Pun).

Below Papallacta, 1 ♀; below Oyacachi, 1 ♂; above Baeza, 3 ♂, 3 ♀ (topotypes); upper Sumaco, 4 ♂, 3 ♀; above Baños ?, 2 ?.

RANGE.—Humid Temperate Zone of eastern Ecuador.

Specimens from *above* Baeza, whence the type doubtless came, are more olive, less rufescent above, and with a more scantily feathered throat than in true *montagnii*. The rump and abdomen are also darker, less bright than in that species. Two specimens from "Ambato" [= above Baños?] agree with the Baeza bird in their scantily feathered throat, but are somewhat browner above.

It is probable that the type came from *above* not *at* Baeza, while the Pasto bird in the British Museum referred by Chubb to this form is probably true *montagnii*.

(95) *Penelope ortonii* Salv.

Penelope ortonii SALV., Ibis, 1874, p. 325 ("W. Pichincha," Ec.); B. & T., 1883, p. 576 (Chimbo); HART., 1898, p. 504 (Cachay); 1902, p. 600 (Rio Bogotá); GOODF., 1902, p. 228 (Santo Domingo).

Above Bucay, 1 ♀, 1 ?; below Mindo, 2 ♀.

RANGE.—Upper Tropical Zone; Colombian-Pacific Fauna from the Chanchan to the Chocó, Col.

The relationships of this distinct species appear to be with the *perspicax-æquatorialis* group. It is doubtful if the type came from Pichincha.

(97) *Penelope æquatorialis* Salvad.

Penelope æquatorialis SALVAD. & FESTA, Boll. Mus. Tor., XV, 1900, No. 368, p. 38 (Rio Peripa, w. Ec.); CHUBB, 1919, p. 16 (mentions a bird collected by Simons, presumably in Ecuador, but gives no data); L. & R., 1922, p. 15 (Gualea; below Nanegal).

Penelope cristata, B. & T., 1883, p. 576 (Chimbo); HART., 1898, p. 504 (Paramba); CHAPM., Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 195 (crit.).

Gualea, 1 ♂; below Mindo, 1 ♀; above Bucay, 1 ♂, 2 ♀; El Chiral, 1 ♀.

RANGE.—Chiefly Tropical Zone; western Ecuador northward through Colombia to Central America.

I have previously (*l. c.*) shown that the Ecuadorean bird is apparently not separable as proposed by Salvadori and Festa, but Chubb (*l. c.*), while reaching the same conclusion, gives reasons for his belief that the name *cristata* is not applicable to this species, which in default of other designation becomes *aequatorialis* Salvad. & Festa.

(98) *Penelope jacquíaçu jacquíaçu* Spix

Penelope jacquíaçu SPIX, Av. Bras., II, 1825, p. 52, pl. lxviii ("in sylvis fluminis Solimoëns"); S. & F., 1900, p. 38 (Valle de Zamora).

Penelope boliviana, GRANT, Cat. Bds. B. M., XXII, 1893, p. 499 (Sarayacu).

Penelope jacquíaçu jacquíaçu, L. & R., 1922, p. 15 (Curaray).

Rio Suno, 4♂, 2♀; Rio Curaray, 1♂.

RANGE.—Tropical Zone, upper Amazonia. (Probably a race, *P. j. boliviana* Reichenb., in Bolivia. See Chapman, Bull. No. 117, U. S. N. M., 1921, p. 44.)

(102a) *Penelope barbata* Chapm.

Penelope barbata CHAPM., Am. Mus. Novit., No. 18, 1921, p. 3 (Taraguacocha, Ec.).

Penelope argyrotis, GRANT, Cat. Bds. B. M., XXII, 1893, p. 501 (San Lucas, Ec., 2 specimens, both examined).

Taraguacocha, 1♀ (the type).

RANGE.—Humid Temperate Zone of western Ecuador.

Specific Characters.—Similar to *Penelope argyrotis* Bonap. but much darker throughout; the chin and upper throat feathered, wholly concealing the skin; whitish margins to feathers gray instead of silvery white and, both above and below, confined to the anterior parts of the body, on the wings appearing only as very slight and inconspicuous markings on the lesser coverts; rump, upper and under tail-coverts and flanks cinnamon-brown instead of Sayal to Mikado-brown.

A representative of *P. argyrotis* of Colombia and Venezuela.

(103) *Penelope albipennis* Tacz.

Penelope albipennis TACZ., P. Z. S., 1877, p. 746 (Tumbez).

RANGE.—Known only from Tumbez.

"Appears to be allied to *P. jacupeba* and *P. orton*i but is distinguished from these and all other species of *Penelope* by having the first eight primaries white with the base and tip dusky, and the ninth whitish toward the middle" (Ogilvie-Grant, Cat. Bds. B. M.). Known from a single specimen taken by Stolzmann who, however, reports seeing others.

(112) *Ortalis guttata guttata* (Spix)

Penelope guttata SPIX, Av. Bras., II, 1825, pl. 73, p. 55 ("ad flumen Solimoës").

Ortalida guttata, SCL., 1858a, p. 76 (Napo); S. & F., 1900, p. 38 (Gualaquiza).

Ortalis guttata, GOODF., 1902, p. 229 (Upper Napo).

Napo, 1; Macas region, 1; Rio Suno, 2♂, 2♀; below San José, 2♀.

RANGE.—Tropical Zone: the species, upper Amazonia, Bolivia to Colombia; the race, upper Amazonia, eastern Ecuador (and northeastern Peru?).

In default of topotypical specimens I accept the Ecuadorean birds as representing true *guttata*. Two Rio Cosireni (Peru) specimens have the throat and breast somewhat darker, the white markings (particularly on the throat) more sharply defined and extending farther on the sides of the head than in Ecuadorean birds. The forehead also is grayer and there is a slight but evident grayish superciliary. They probably represent *O. g. adspersa* Tsch. (cf. Chapm. Bull., No. 117, U. S. Nat. Mus., 1921, p. 44). Southeast Colombian birds are browner throughout than Ecuadorean ones, and I have proposed for them the name *Ortalis guttata caquetæ* (Am. Mus. Novit., No. 96, 1923, p. 2).

(115) *Ortalis erythroptera* (Scl. & Salv.)

Ortalida erythroptera SCL. & SALV., P. Z. S., 1870, p. 540 (Babahoyo); Tacz., 1877, p. 333 (Palmar); S. & F., 1900, p. 38 (Rio Peripa).

Ortalida ruficeps, SCL., 1860d, p. 289 (Babahoyo).

Ortalis erythroptera, HART., 1898, p. 505 (Chimbo).

Esmeraldas, 1♂; Chone, 1♂; Rio de Oro, 1♂; Santa Rosa, 2♂; Alamor, 2♀. Peru: Paletillas, 1.

RANGE.—Tropical Zone, chiefly Equatorial Arid Fauna from northwestern Peru, north to Esmeraldas.

Specimens from the more southern part of this area have less rufous on the throat than those from north of Guayaquil. The type, and a specimen from Balzar, examined by me in the British Museum, have the rufous throat-band of the northern form.

(116) *Pipile cumanensis cumanensis* (Jacq.)

Craz (cumanensis) JACQ., Beytr. Gesch. Vögel, 1784, pl. x, p. 25 (Orinoco).

Penelope pipile, SCL., 1858a, p. 76 (Napo).

Pipile cumanensis, S. & F., 1900, p. 38 (Valle de Zamora); GOODF., 1902, p. 229 (Napo); L. & R., 1922, p. 15 (Curaray River).

Rio Suno, 1♂, 2♀; below San José, 2♀.

RANGE.—Tropical Zone: the species, Amazonia.

I have no lower Orinoco specimens for comparison, but Ecuadorean birds agree with an example from the Rio Roosevelt in being blue-black with a straw-colored crown; while specimens from Bolivia, Matto Grosso, and the Falls of the Madeira are greener with white or whitish crown. The latter doubtless represent *P. c. nattereri*, and I provisionally refer the former to *P. c. cumanensis*.

(121) *Aburria aburri* (Less.)

Penelope aburri LESS., Dict. Sci. Nat., LIX, 1829, p. 191 (Bogotá).

Aburria carunculata, SCL., 1858a, p. 76 (Napo); S. & F., 1900, p. 39 (Valle del Rio Zamora).

Aburria aburri, CHUBB, 1919, p. 21, (Mirador, Banas [=Baños?], 1,500 m.; Baeza).

Rio Napo, 1♂; Rio Sardinas, 1♂; below Oyacachi, 4♂; Baeza, 2♂, 1♀; lower Sumaco, 2♀; Macas, 2 im.; Sabanilla, 1♂, 1♀; Zamora, 1♀.

RANGE.—Subtropical Zone, Colombia to Peru; in Ecuador known only from the eastern slope of the Andes.

This species occurs in the western Andes but has not been found in western Ecuador. Our specimens agree with others from Colombia.

Two unsexed specimens from the Macas region have nearly completed the postjuvénal molt. The new plumage exactly resembles in color that of adult *Aburria*, but the birds are so much smaller than that species that it was not until I received, through the kindness of the late Charles Chubb, measurements of an immature *Aburria aburri* in the British Museum, that I referred them to that species. Aside from the difference in size, the Macas birds further differ from adult *Aburria* in having the throat and interocular region bare, except for a thin growth of buffy brown down and a few scattered ingrowing black feathers. Should the growth of these black feathers spread over the two regions concerned, it is clear that the only remaining difference between the Macas specimens and adult *Aburria* would be that of size, and this difference, it appears, is one of age. Our specimens measure, No. 136763, wing to 8th primary, from without (a new and fully-grown feather), 239 mm.; tail, to end of central rectrix (new and fully grown), 213 mm.; culmen, 29 mm. No. 156762, wing to end of 7th primary, from without (a new and fully grown feather), 247 mm.; tail, to end of central rectrix, 224 mm.; culmen, 29.5 mm. The measurements supplied by Mr. Chubb are: wing, 236 mm.; tail, 210 mm.; culmen, 31 mm.

(122a) *Chamæpetes goudoti tschudii* Tacz.

Chamæpetes tschudii TACZ., Orn. Per., III, 1886, p. 275 (Moyobamba, Peru); B. & T., 1885, p. 112 (Runacocha).

Chamæpetes goudoti tschudii, CHUBB, 1919, p. 23 (Baeza); L. & R., 1922, p. 15 (Baeza).

Baeza, 4♂, 6♀; below Oyacachi, 1♂; Sumaco, 3♂, 1♀; Zamora, 1♀.

RANGE.—Subtropical Zone: the species, Peru to Colombia; the race, northeastern Peru and eastern Ecuador.

Our specimens agree with Taczanowski's description and differ from all other known forms of this group in the extension of the rufous underparts anteriorly, the consequent restriction of the grayish brown of the throat, and the sharper definition of both colors at their junction. The Baeza birds are adult, the Zamora bird immature, a fact which may account for the larger size and darker color of the former.

Two males collected by W. Hoffmanns at Libertad, Peru, are evidently referable to *rufiventris* Tschudi. They may at once be distinguished by the pronounced grayish margins to the darker green feathers of the head, neck, nape, throat, and chest. Neither these specimens nor the Zamora bird here referred to *tschudii* agree in size with the measurements given by the describers of *rufiventris* and *tschudii* respectively. But the differences are doubtless in part due to individual variation in the birds themselves, in part to different methods of measurement.

(123a) *Chamæpetes goudoti fagani* Chubb

Chamæpetes fagani CHUBB, Bull. B. O. C., XXXVIII, 1917, p. 4 (Mindó, Ec.); Ibis, 1919, p. 24, pl. I.

Ortalia rufiventris, SCL., 1859a, p. 147 (Pallatanga).

Chamæpetes goudoti, B. & T., 1884, p. 312 (Cayandeled); MEN., 1911, p. 4 (Gualea)

Chamæpetes goudoti goudoti, L. & R., 1922, p. 15 (Gualea; Piganta).

Near Chunchi; Chiguancay (Rhoads.)

Mojanda Mts., 1♂; Gualea, 1♂; El Chiral, 1♂; Zaruma, 4♂, 3♀; Salvias, 2♂.

RANGE.—Western Subtropical Zone of Ecuador.

Western Ecuadorean specimens differ in color from Colombian ones only in the slightly darker shade of the upperparts, but they are much smaller, with a disproportionately shorter tail, as shown in the appended table of measurements. The type and an immature male of *fagani* are said to have the face red, whereas both Richardson and Cherrie state that in specimens from the Zaruma region it is blue. Native collectors at Quito also stated that the face is blue. Colombian specimens have

the face blue and a specimen from Zaruma as well as two from Libertad, Peru, are labeled as having it this color. The normal color of the face in this form appears, therefore, to be blue and the two specimens recorded by Chubb are doubtless exceptional as regards the color of the bare skin about the eye.

Measurements of races of Chamæpetes goudoti

Name	Locality		Wing mm.	Tail mm.
<i>C. g. goudoti</i>	Laguneta, Quindio, Col.	♂	263	264
<i>C. g. goudoti</i>	Laguneta, Quindio, Col.	♂	265	257
<i>C. g. goudoti</i>	San Antonio, West Andes, Col.	♂	255	250
<i>C. g. goudoti</i>	Choachi, near Bogotá, Col.	♂	264	244
<i>C. g. fagani</i>	Gualea, Ec.	♂	202	195
<i>C. g. fagani</i>	El Chiral, Ec.	♂	236	210
<i>C. g. fagani</i>	Salvias, Ec.	♂	227	200
<i>C. g. fagani</i>	Zaruma, Ec.	♂	235	210
<i>C. g. goudoti</i>	Laguneta, Quindio, Col.	♀	260	269
<i>C. g. goudoti</i>	Laguneta, Quindio, Col.	♀	253	264
<i>C. g. goudoti</i>	Laguneta, Quindio, Col.	♀	258	268
<i>C. g. fagani</i>	Zaruma, Ec.	♀	215	219
<i>C. g. fagani</i>	Zaruma, Ec.	♀	222	217
<i>C. g. fagani</i>	Zaruma, Ec.	♀	218	220
<i>C. g. tschudii</i>	Zamora, Ec.	♀	229	253
<i>C. g. tschudii</i>	Baeza, Ec.	♀	262	262
<i>C. g. tschudii</i>	Baeza, Ec.	♀	255	255
<i>C. g. rufiventris</i>	Libertad, Peru	♂	238	255
<i>C. g. rufiventris</i>	Libertad, Peru	♂	244	258

I append a synopsis of the characters of the five forms I recognize in this variable group. They are represented in our collection by 50 specimens.

Throat grayish.

Gray of throat spreading over breast, not widely margined with ashy.

Larger; wing over 250 mm. Colombia (except Santa Marta) *C. g. goudoti*¹

Smaller; wing under 250 mm. Western Ecuador *C. g. fagani*

Gray of throat and breast conspicuously margined with ashy. Central Peru *C. g. rufiventris*

Gray of throat restricted, sharply defined from rufous of breast. Eastern Ecuador, northern Peru *C. g. tschudii*

Throat rufous slightly darker than breast. Santa Marta

Mts. *C. sanctæ-martæ*

¹ In this connection it should be stated that the type-locality of *goudoti* is the Quindio region of the Central Andes and not Bogotá as given by Chubb. *C. g. antioquiensis* Chubb is, therefore, a pure synonym of *goudoti*. The Bogotá form is not, in my opinion, separable, as I have already stated (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 198).

FAMILY ODONTOPHORIDÆ. AMERICAN QUAILS AND PARTRIDGES

(130a) *Odontophorus guianensis buckleyi* Chubb.

Odontophorus guianensis buckleyi CHUBB, Ibis, 1919, p. 27 (Sarayaquí, Ec.).

Odontophorus marmoratus, S. & F., 1900, p. 39 (Valle de Zamora).

Upper Rio Suno, 9 ♂, 7 ♀, 1 pull. (April. 3).

RANGE.—Tropical Zone: the species, Guiana to Panama and Bolivia; the race, eastern Ecuador.

There can be no doubt of the distinctness of east Ecuadorean birds from true *guianensis*, and if we accept specimens from the east Bogotá region as typical of *marmoratus*,¹ they are also separable from that form. From them both the east Ecuadorean bird differs in having the underparts darker, with numerous more or less broken black bars, the throat and breast more extensively vermiculated with gray. In the barring of the underparts, *buckleyi* more nearly resembles *panamensis* than it does *marmoratus*; indeed, some east Ecuadorean specimens can be closely matched by one from eastern Panama and another from Puerto Valdivia on the lower Cauca.

(133) *Odontophorus erythrops* Gould

Odontophorus erythrops GOULD, P. Z. S., 1859, p. 90 (Pallatanga, Ec.); Sci. 1859a, p. 147 (Pallatanga); 1860a, p. 72 (Pallatanga); 1860a, p. 298 (Esmeraldas); B. & T., 1883, p. 576 (Chimbo); OGILVIE-GRANT, Cat. Bds. B. M., XXII, 1893, p. 435 (Pallatanga; Balzar; Monji).

RANGE.—Western Ecuador.

We have no specimens of this species, which appears to be a representative of *O. melanotis* of Central America.

(136) *Odontophorus speciosus* Tsch.

Odontophorus speciosus TSCH., Arch. für Naturg., 1843, p. 387 (Chanchamayo); S. & F., 1900, p. 39 (San José).

Sabanilla, 1 ♂; near Archidóna, 1 ♀; San José, 2 ♂, 1 ♀; lower Sumaco, 1 ♂; Ecuador, 1.

RANGE.—Tropical Zone, eastern Peru and eastern Ecuador.

We have no Peruvian specimens.

¹ Cf. Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 200.

(137) *Odontophorus melanonotus* Gould

Odontophorus melanonotus GOULD, P. Z. S., 1860, p. 382 (Ecuador); MEN., 1911, p. 4 (Guala; Pachijal, Chemin d'Esmeraldas); L. & R., 1922, p. 15 (Guala; Nanegal).

Guala 2♂, 1♀; below Mindo, 1♂, 1?.

RANGE.—Known only from the western Subtropical Zone.

A very strongly marked species which finds its nearest relative in the quite distinct *O. hyperythrus* of Colombia.

(138) *Odontophorus parambæ parambæ* Roths.

Odontophorus parambæ ROTHS., Bull. B. O. C., 1897, VII, p. vi, (Paramba, Ec.); HART., 1898, p. 505 (Paramba); 1902, p. 600 (Rio Verde, Paramba; Lita; Pambilár); S. & F., 1900, p. 39 (Rio Peripa); CHUBB, 1919, p. 29 (Guala [= Guala]); L. & R., 1922, p. 15 (Guala, 3,000 ft.; below Mindo; Santo Domingo).

Esmeraldas, 1♂; below Guala, 1♂; below Mindo, 1?; Pato de Pajaro (2,000 ft.), 1; Naranjo, 2♀; Chimbo, 1♂.

RANGE.—The species, Colombian-Pacific Fauna; the race, south to the vicinity of Zaruma, north to Baudo, Col., ranging upward to the Subtropical Zone.

A distinct species perhaps most closely allied to *O. melanotis* of Central America. Specimens from near Zaruma are intermediate between this form and the next.

(138a) *Odontophorus parambæ canescens* Chapm.

Odontophorus parambæ canescens CHAPM., Am. Mus. Novit., No. 18, 1921, p. 4 (Alamor, Ec.)

El Chiral, 1♂; Zaruma, 1♂, 1♀; Alamor, 4♂.

Subspecific Characters.—Similar to *Odontophorus parambæ parambæ* Roths., but prevailing color of the upperparts grayish rather than rich brownish, the black areas smaller, the markings on wing-coverts and tertials buffy rather than ochraceous; size much larger, the bill longer and notably thicker.

RANGE.—Subtropical (and humid Tropical ?) Zone of southwestern Ecuador from the Peruvian boundary north to the Zaruma region.

	Sex	Measurements				Depth of bill at base mm.
		Wing mm.	Tail mm.	Tarsus mm.	Culmen mm.	
Alamor, Ec.	♂	153	61	36	20.5	13
Alamor, Ec.	♂	145	58	38	20	13
Esmeraldas, Ec.	♂	130	..	35	18	11.5
Barbacoas, Col.	♀	135	49	35	18.5	11.5
Baudo, Col.	♂	130	50	35	18	10.5
Naranjo, Ec.	♀	134	55	38	19	12
Zaruma, Ec.	♂	144	57	37	20	13
Zaruma, Ec.	♀	144	..	37	19.5	13

Odontophorus parambæ occurs in both the Tropical and Subtropical Zones of the Pacific coast of Ecuador and Colombia, from the Peruvian boundary at least to the Chocó. From the last-named region to northern Ecuador it shows no apparent geographical variation. Naranjo specimens are slightly larger, while those from near Zaruma exhibit a further approach toward *canescens*, not only in size but in their grayer color. They are, indeed, so nearly intermediate between the small dark northern race and the large pale southern one that it is difficult to say to which they should be referred. Our series therefore indicates the complete intergradation of these two well-marked races.

(140) *Odontophorus stellatus* Gould

Odontophorus stellatus GOULD, P. Z. S., 1842, p. 183 (Brazil); OGILVIE-GRANT, Cat. Bds. B. M., XXII, 1893, p. 438 (Rio Napo).

RANGE.—Upper Amazonia.

We have no specimens from Ecuador.

(140a) *Odontophorus söderstromi* Lönn. & Rendh.

Odontophorus söderstromi LÖNN. & RENDH., Arkiv. für Zoöl., Band 14, No. 25, 1922, p. 16 (near Napo, Ec.).

Based on a single specimen. No comparison is made with other species. The chin and throat are described as "transversely banded with rusty red and black," "the lower parts otherwise rust red." Apparently known only from the type.

(143a) *Rhynchortyx cinctus australis* Chapm.

Rhynchortyx cinctus australis CHAPM., Bull. A. M. N. H., XXXIV, 1915, p. 365 (Barbacoas, Col.).

Rhynchortyx cinctus, HART., 1902, p. 600 (Bulón; Rio Bogotá; Pambilar).

RANGE.—Tropical Zone: the species, northwestern Ecuador to Nicaragua; the race, northwestern Ecuador and western Colombia.

We have no Ecuadorean specimens, but those recorded doubtless resemble our series from Barbacoas.

* ORDER COLUMBIFORMES

FAMILY COLUMBIDÆ. PIGEONS AND DOVES

(149) *Columba speciosa* Gmel.

Columba speciosa GMEL., Syst. Nat., I, 1788, p. 783 (Cayenne); SCL., 1860e, p. 298 (Esmeraldas); S. & F., 1900, p. 34 (Gualaquiza).

Chlorænas speciosa, SCL., 1858a, p. 76 (Napo).

Chone, 4 ♂; Zamora, 2 ♂; Rio Suno, 3 ♂, 3 ♀.

RANGE.—Tropical Zone from Brazil to Mexico; eastern and western Ecuador.

(152) *Columba rufina* Temm. & Knip.

Columba rufina TEMM. & KNIP., Fig. I, 1808–11, p. 59, pl. 24 ("French Guiana"); SCL., 1859a, p. 147 (Pallatanga); 1860c, p. 97 (Nanegal); 1860d, p. 289 (Babahoyo); B. & T., 1885, p. 110 (Yaguachi); S. & F., 1900, p. 34 (Vinces); GOODF., 1902, p. 227 (Chillo Valley).

Chone, 3 ♂; Daule, 1 ♀.

RANGE.—Recorded only from the Colombian-Pacific Fauna, but doubtless occurring also in the Amazonian Fauna.

While to some extent (particularly in the more uniform color of the tail) intermediate between *pallidicrissa* and *rufina*, our Ecuadorean specimens, in the grayer color of the abdominal region, and grayer, less brownish wing-coverts, more closely approach *rufina*.

(153) *Columba goodsoni* Hart.

Columba goodsoni HART., Bull. B. O. C., XII, 1902, p. 42 (no type named; "S. Javier, Pambilar, and Carondelet, northwestern Ecuador" given as "Hab."); 1902, p. 602 (Carondelet; Rio Japayo [=Sapayo?]; Cayapas River; Pambilar; San Javier); L. & R., 1922, p. 17 (Gualea).

Esmeraldas, 2 ♂.

RANGE.—Tropical Zone, northwestern Ecuador to western Colombia.

A strongly marked species apparently confined to the Colombian-Pacific Fauna.

(154) *Columba albilinea albilinea* Bonap.

Columba albilinea BONAP., Consp. Av., II, 1854, p. 51 (New Granada); SCL., 1860a, p. 72 (Pallatanga); B. & T., 1884, p. 311 (Bugnac); S. & F., 1900, p. 34 (Pun;

La Concepcion); MEN., 1911, p. 5 (Alaspungo; Chambo); CHUBB, 1919, p. 30 (Guallabamba; Prov. Chimborazo); L. & R., 1922, p. 17 (Nono; Lloa; Pichincha; Mojanda; near Cumbaya River).

Chlorænas albilinea, SCL., 1858c, p. 556 (Matos).

Huigra; near Chunchi (Rhoads).

El Chiral, 2 ♀; above Baeza, 1 ♂; below Cerro Huamani, 1 ♀; below Oyacachi, 2 ♀; upper Sumaco, 1 ♂.

RANGE.—Subtropical to the Temperate Zone on both eastern and western Andean slopes. Bolivia to Colombia and Mt. Roraima; *C. a. crissalis* in the subtropics of Costa Rica and western Panama.

Our specimens agree with a series from Colombia.

(156a) *Columba plumbea propinqua* Cory

Columba plumbea propinqua CORY, Field Mus. Pub., X, 182, 1915, p. 295 (Moyobamba, Peru).

Columba plumbea, S. & F., 1900, p. 34 (Valle del Rio Santiago).

Rio Suno, 3 ♂, 1 ♀; below San José, 1 ♂, 1 ♀.

RANGE.—The species, eastern Brazil to Colombia; the race, eastern Peru through eastern Ecuador to eastern Colombia.

These specimens agree with two from Buena Vista, east of Bogotá, identified by Ridgway as *C. p. propinqua* Cory.

(156b) *Columba plumbea chapmani* (Ridgw.)

Enænas plumbea chapmani RIDGW., Bull. No. 50 U. S. N. M., VII, 1916, p. 325 (Gualea, Ec.).

? *Columba plumbea bogotensis*, HART., 1902, p. 602 (Paramba); L. & R., 1922, p. 17 (Mindo).

Columba plumbea, MEN., 1911, p. 5 (Gualea).

Gualea, 3 ♂ (inc. type), 1 ♀; below Mindo, 3 ♂, 2 ♀; El Chiral, 1 ♀; La Chonta, 1 ♂.

RANGE.—Western Subtropical Zone, Ecuador.

This form closely approaches *C. p. propinqua* as that species is represented in our collection by two specimens from Buena Vista, Colombia, and four from eastern Ecuador, the specimens from La Chonta and El Chiral being barely separable from the eastern birds.

Although we ourselves have not taken this form and *subvinacea berlepschi* at the same locality, they occur in the same faunal area and we have 'Gualea' examples of both, facts which confirm the view already expressed (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 204) that

plumbea and *subvinacea* are distinct species and do not intergrade through *subvinacea bogotensis*. Specimens of *plumbea* from the Bogotá region and Ecuador, aside from other differences, may be known by their olive wings with practically no trace of the vinaceous (none at all in the quills) which is always present in all the forms of *vinacea*.

It is noteworthy that whereas *propinqua* has been found only in the Tropical Zone, *chapmani* is known from the Tropical and Subtropical Zones.

(159) ***Columba subvinacea bogotensis* (Berl. & Lev.)**

Chlorænas plumbea bogotensis BERL. & LEV., 1890, p. 32 (Colombia: Santa Fé de Bogotá, *ex præp.*)

? *Columba subvinacea*, GOODF., 1902, p. 227 (Baeza specimens only).

'Napo,' 2 ?; Baeza, 2 ♂.

RANGE.—The species, Bolivia to Guatemala and northeastern Venezuela; the race, Subtropical Zone (except in western Andes of Colombia) southward on the eastern slope and at the base of the eastern Andes to Bolivia.

Two males from Baeza and two unsexed 'Napo' specimens agree essentially with topotypical specimens of *bogotensis*. We have also a specimen of this race from Todos Santos, Dept. of Cochabamba, Bolivia, indicating that its range extends through the entire eastern Andean region.

I have nothing to add to the discussion of the relationships of this species contained in my 'Bulletin' on Colombian birds (p. 204).

(160) ***Columba subvinacea berlepschi* Hart.**

Columba subvinacea berlepschi HART., Nov. Zoöl., V, 1898, p. 504 (Paramba, northwestern Ecuador); 1902, p. 602 (Paramba; San Javier; Pambilar); CHAPM., Bull. A. M. N. H., XXXVI, p. 206 (crit.); L. & R., 1922, p. 17 (Nanegal; Guala).

Columba subvinacea, B. & T., 1883, p. 574 (Chimbo); S. & F., 1900, p. 34 (Rio Peripa); GOODF., 1902, p. 227 (Santo Domingo specimen only).

Bucay (Rhoads).

Esmeraldas, 1 ♂; Guala, 1 ♀; Rio de Oro, 4 ♂, 1 ♀; Naranjo, 2 ♀; Bucay, 1 ♂; Alamor, 2 ♂.

RANGE.—Colombian-Pacific Fauna from southern Ecuador north to eastern Panama.

(162) ***Zenaida auriculata hypoleuca* Bonap.**

Zenaida hypoleuca BONAP., Consp. Av., II, 1854, p. 83 (Pearl Island; type examined); SCL., 1858b, p. 460 (Gualaquiza; Cuenca); 1858c, p. 556 (Riobamba); 1860c, p. 97 (Calacali).

Zenaida maculata, B. & T., 1883, p. 575 (Guayaquil; Chimbo); 1884, p. 311 (Cechee).

Zenaida auriculata, HART., 1898, p. 503 (Lake Yaguarcocha); S. & F., 1900, p. 35 (Cuenca; Ibarra; La Concepcion; Quito; Puntilla de Santa Elena); MEN., 1911, p. 6 (Nanegal; Paramo de Corazon; Tumbaco; Riobamba); L. & R., 1922, p. 17 (Quito; Cumbaya; Chaupicruz).

Zenaida auriculata pallens BANGS & NOBLE, Auk, 1918, p. 446 (Huancabamba, Peru);

Huigra; Riobamba; Cumbaya; Cajabamba (Rhoads).

Santa Elena, 2♂, 1♀; La Plata Is. 1?; Puna Is., 2♂; Jambeli, 1♀; Zaruma, 1?; Lunamá, 1♂; San Bartolo, 1♀; Guainche, 2♂; Valle de Cumbaya, 1♂; Mocha, 1♂; Antisana, 1♀; Pomasqui, 1♀.

RANGE.—The species, Argentine to Colombia; the race, in Ecuador, chiefly western from the Tropical Zone upward to the arid Temperate Zone.

A 'field' Dove inhabiting open places. On the Amazonian side it is recorded only from Gualaquiza where, doubtless, the forests have been cleared away sufficiently to provide it with suitable haunts.

Examination of Bonaparte's type in the British Museum shows it to be a fairly typical specimen of the whitish- or buff-bellied race of this species inhabiting the Andean region between Colombia and Chile. The specimen bears what is apparently a field label reading "Pearl Island" while the museum label reads "Pearl Island, Pres. by Kellett and Wood."

(167) *Melopelia meloda* (Tsch.)

Columba meloda TSCH., Arch. für Naturg., 1843, I, p. 385 (Peru).

Santa Elena, 1♂; Puna Is., 2♂, 1♀.

RANGE.—Equatorial Arid Fauna southward to northern Chile. (Fig. 9, p. 66.)

Our Ecuadorean specimens agree with an excellent series taken in Peru from Trujillo south to Cocachaera near the Chilean line.

While the differences between this species and *Melopelia asiatica* of Central America are evidently of specific value, the two species, sole members of their genus, are apparently representative of one another, a fact which makes it especially worthy of note that from western Panama to southwestern Ecuador neither has been found. This species has not before been recorded from Ecuador.

(174a) *Chæmepelia passerina quitensis* Todd

Chæmepelia passerina quitensis TODD, Ann. Carnegie Mus., VIII, 1913, p. 547 (Zambiza, 6 miles northeast of Quito, Ec.); L. & R., 1922, p. 17 (Zambiza; Pomasqui; Cumbaya; Tumbaco).

Chamæpelina granatina, SCL., 1858c, p. 556 (Riobamba).

Chamæpelina passerina, B. & T., 1885, p. 111 (Riobamba); S. & F., 1900, p. 35 (La Concepcion; Ibarra; Tumbaco); GOODF., 1902, p. 227 (Chillo Valley); MEN., 1911, p. 7 (Calacali; Tumbaco).

Columbigallina passerina, ALLEN, 1889, p. 76 (Quito).

Columbigallina passerina granatina, HART., 1898, p. 503 (Chimbo).

Chæmepelia griseola quitensis, CHUBB, 1919, p. 39 (Riobamba).

Chambo; Riobamba; Zambiza; Cumbaya (Rhoads).

Near Quito, 5 ♂; Tumbaco, 3 ♂, 3 ♀; Valle de Cumbaya, 5 ♂, 1 ♀; Pomasqui, 1 ♂.

RANGE.—The species, Brazil to southern United States; the race, chiefly arid Temperate Zone; Guallabamba Cañon to Riobamba.

It is singular that, with the exception of a pair of birds taken by Rosenberg at Chimbo (Hartert, *l. c.*), all the authentic records of this race, as well as all the specimens in our collection, are from the Temperate Zone, whereas the remaining forms of the species are largely restricted to the Tropical Zone. The Ecuadorean form appears to be closely related to *nana* of western Colombia, from which it differs chiefly in the larger size that usually characterizes forms of higher altitudes. Possibly, therefore, it has reached the Ecuadorean tableland by extension of its range from the Cauca Valley southward over the open, unforested area suitable to its habits, while the continuous heavy forests covering the coast of Colombia have been an effective barrier to the southward extension of its range in the Tropical Zone.

(177) *Eupelia cruziana* (d'Orb.)

Columba cruziana d'ORB., Prev. & Knip, Fig. II, p. 89, pl. xlvi, 1838-43 (Bolivia = northern Chile?).

Columbula cruziana, SCL., 1858b, p. 461 (Cuenca); 1860d, p. 289 (Babahoyo); TACZ., 1877, p. 754 (Tumbez).

Chamæpelina cruziana, B. & T., 1883, p. 575 (Chimbo; Yaguachi); S. & F., 1900, p. 35 (Cuenca; Puntilla de Santa Elena).

Esmeraldas, 1 ♂, 3 ♀; Coast of Manaví, 3 ♂, 1 ♀; Bahía de Caraquez, 2 ♂, 2 ♀; Manta, 2 ♂, 1 ♀; Plata Is., 1 ♂, 2 ♀; Santa Elena, 1 ♂; Guayaquil, 2 ♂, 1 ♀; Bucay, 1 ♂; Puna Is., 3 ♂; Santa Rosa, 2 ♂; Casanga, 1 ♀; Rio Pindo, 2 ♂, 1 ♀; Lunamá, 1 ♂; Guainche, 1; Sabanilla, 1 ♂.

RANGE.—Equatorial Arid Fauna southward to northern Chile.

A very common species of the arid and semi-arid Tropical Zone of the Pacific coast from northern Ecuador to northern Chile. A single specimen from Sabanilla (alt. 5,700 ft.), in the forests of the eastern Andes above Zamora, was taken so far from the range of the species as to be considered of accidental occurrence. I can detect no difference

between specimens from Ecuador and others from extreme southern Peru.

It is doubtful if this species occurs in what is now known as Bolivia, the type having probably come from some locality in that part of northern Chile which, at the time of its description, was Bolivian territory.

(178) *Chæmepelia buckleyi* *Scl. & Salv.*

Chamæpelia buckleyi SCL. & SALV., P. Z. S., 1877, p. 21 (Santa Rita, Ec.); B. & T., 1883, p. 575 (Yaguachi; Guayaquil); 1885, p. 111 (Yaguachi); S. & F., 1900, p. 35 (Babahoyo; Vinces; Balzar).

Esmeraldas, 4♂, 6♀; Coast of Manaví, 1♂, 1♀; Chone, 3♂, 1♀; Chongoncito 1♂, 1♀; Pallatanga, 1♀, Puna Is., 1♂, 1♀; Guayaquil, 1♂; Duran, 1♂ ad., 1♂ im., 1♀; Daule, 2♂, 1♀, 2♀; Portovelo, 1♂, 1♀; Santa Rosa, 3♂, 5♀; Rio Jubones, 1♂.

RANGE.—Equatorial Arid Fauna from Esmeraldas to northwestern Peru, ranging upward in open country to the Subtropical Zone.

The nearest ally of this species appears to be *C. minuta*, and, while it is unquestionably specifically distinct from that species, it is, nevertheless, worthy of note that *buckleyi* is common in Ecuador but unknown in Peru (except, as stated, on the Ecuadorean border), while *minuta* is common in western Peru (we have a large series from the Province of Lima) and is unrecorded from Ecuador.

(183) *Claravis pretiosa* (*Ferrari-Perez*)

Peristera pretiosa FERRARI-PEREZ, Proc. U. S. N. M., IX, 1886, p. 175 (Jalapa, Mex.).

Claravis pretiosa livida BANGS., Proc. Biol. Soc. Wash., XVIII, 1905, p. 153 (Rio Cauca, Col.).

Peristera cinerea, TACZ., 1877, p. 329 (Lechugal); B. & T., 1883, p. 575 (Chimbo); 1885, p. 111 (Yaguachi); HART., 1898, p. 504 (Chimbo); S. & F., 1900, p. 35 (Rio Peripa; Vinces); GOODF., 1902, p. 228 (Santo Domingo).

Claravis pretiosa, CHUBB, 1919, p. 41 (Zaruma); L. & R., 1922, p. 18 (Babahoyo).

Esmeraldas, 4♂, 3♀; Coast of Manaví, 1♀; Chone, 1♂; Puna Is., 3♂, 1♀, 2 im.; Naranjo, 1♀; Daule, 5♂, 1♀, 1♀; Portovelo, 1♂, 1♀; Santa Rosa, 2♂, 1♀.

RANGE.—Tropical Zone; Paraguay to Mexico. Not as yet known from eastern Ecuador.

A common species in clearings, cacao groves, and similar places. After comparison of our Ecuadorean specimens with an excellent series from Mexico and Central America, I conclude with Ridgway (Bull. 50, Pt. vii, 1916, p. 432) that the differences between South American and

Central American specimens are not constant enough to warrant the recognition of two forms, and I therefore treat *livida* Bangs as a synonym of *pretiosa*. Ecuadorean females average more rufous above than Central American ones, and the more rufous Ecuadorean specimens cannot be matched by any of our Central American birds. On the other hand, a large proportion of the females in both series agree closely, while males from the two areas cannot be distinguished.

(186) **Claravis mondetoura** (Bonap.)

Peristera mondetoura BONAP., Compt. Rend., xlii, 1856, pp. 765, 957 (Caracas); B. & T., 1885, p. 111 (San Rafael).

Zamora, 1 ♂.

RANGE.—Subtropical Zone; Peru to Mexico; eastern Ecuador.

It is worthy of note that although both this species and *C. pretiosa* are found in Central America north to southern Mexico, the latter is known only from western Ecuador while the present species is known only from eastern Ecuador.

(187a) **Metriopelia melanoptera saturator** Chubb

Metriopelia melanoptera saturator CHUBB, Bull. B. O. C., XXXVIII, 1917, p. 32 (Cañar, Ec.); Ibis, 1919, p. 42 (Riobamba); L. & R., 1922, p. 18 (Tablon; Sananlajas; Illiniza; not on Pichincha).

Columba boliviana, JARD., 1849, p. 44 (Andes at Quito, 13,000 to 14,000 ft.).

Peristera melanoptera, SCL., 1860b, p. 82 (Panza).

Metriopelia melanoptera, B. & T., 1884, p. 311 (Cechce); 1885, p. 111 (Chimborazo); HART., 1898, p. 503 (near Cayabe); S. & F., 1900, p. 36 (Cañar; Chaupi; Chuquipoquio); GOODF., 1902, p. 227 (Cotopaxi, 13,500 ft.).

Cerro Huamani, 2 ♂, 1 ♀; Antisana, 1 ♂; Mt. Chimborazo, 3 ♂, 5 ♀.

RANGE.—Paramo Zone: the species, Chile to Ecuador; the race, Ecuador.

A well-marked form of apparently southern origin which reaches its known northern limit in Ecuador. Its southern limit is doubtless marked by the southern boundary of its zone not far north of the Marañon, since specimens from Lake Junin, Peru, are obviously nearer to the Chilean than to the Ecuadorean form.

(189a) **Leptotila verreauxi decolor** (Salv.)

Leptotila decolor SALV., Nov. Zoöl., II, 1895, p. 21 (Cajabamba, Peru).

Leptotila verreauxi, SCL., 1859a, p. 147 (Pallatanga); 1860d, p. 289 (Babahoyo); B. & T., 1884, p. 311 (Cayandeled); S. & F., 1900, p. 36 (La Concepcion; Tumbaco);

Vinces; Balzar); MEN., 1911, p. 7 (Laulin, Nanegal); HART., 1898, p. 503 (Lake Yaguarcocha).

Leptotila verreauxi decolor, CHUBB, 1919, p. 45 (Puna Is.; Loja).

Leptotila verreauxi occidentalis, L. & R., 1922, p. 18 (Cumbaya; Nono; Gualea; Nanegal).

Huigra; Bucay; Chunchi; Cumbaya (Rhoads).

Esmeraldas, 1 ♀; Chone, 1 ♀; Puna Is., 1 ♂, 1 ♀, 1 juv.; Chongoncito, 3 ♂, 1 ♂ juv., 1 ♀ juv.; Duran, 1 ♀; Naranjo, 1 ♂; Daule, 2 ♂; Pallatanga, 2 ♀; Celica, 1 ♂; Guachanamá, 2 ♂, 1 ♀; Casanga, 2 ♂; Santa Rosa, 1 ♂, 1 ♀; Zaruma, 1 ♀; Rio Pindo, 1 ♂; Portovelo, 3 ♀; Lunamá, 1 ♂, 1 ♀; Guainche, 2 ♂; Valle de Cumbaya, 2 ♂; Mt. Pichincha, 1 ♀; Guillabamba, 1 ♂, 2 ♀; Tumbaco, 1 ♀; Yaguarcocha, 2 ♂.

RANGE.—The species, Peru to Colombia and Trinidad; the race, northern Peru from the Marañon Valley above the Pongo de Manseriche in the interior, and Trujillo on the coast, north through western and central Ecuador (Tropical to Temperate Zones) to the western Subtropical Zone in Colombia.

A bird of semi-arid bushy growths, forest-borders, clearings, and grain-fields which is at home in the Equatorial Arid Zone and ranges upward, where forest is not existent, to the tableland. It is found in the valley of the Guallabamba up which it has apparently reached the Quito and Chillo valleys.

The recent acquisition of topotypical specimens of *Leptotila decolor* Salv., and the examination of the type of this form reveals the, to me, surprising fact that there is not, in my opinion, sufficient difference between the birds of northern Peru and western Colombia to warrant the recognition of *C. v. occidentalis* Chapm. Peruvian birds have, as a rule, whiter foreheads than Colombian ones, but beyond this character, which at best is an average one, I can detect no diagnostic differences between birds from the two regions. I have no Colombian birds with as white foreheads as those of most Peruvian birds, but numbers of Peruvian specimens have this region quite as dark as in Colombian birds. Ecuadorean specimens are most interesting. Those from the Equatorial Arid Fauna are wholly typical of *decolor*, but those from the Subtropical and Temperate Zones are distinctly darker above, the breast is deeper vinaceous, and the flanks are more brownish, leaving comparatively little white on the abdomen. One would expect these upper-zone birds to agree with '*occidentalis*' of western Colombia, just as those from the Equatorial Arid Zone agree with those of northern Peru. As a matter of fact, they differ more from true *decolor* than do the western Colombian birds. If we had only Peru and Ecuador to consider, I should have no hesitation in describing the upper-zone Ecuadorean bird, but with the Peruvian form reappearing in the same zone in Colombia, we should have an anomalous case in distribution and, at the same time, create so large an area of intergradation (for the

darker Colombian birds would be indistinguishable from upper-zone Ecuadorean ones) that the satisfactory determination of many specimens would be impossible. We may, therefore, content ourselves with this statement of the apparent facts in the case and leave to the systematists of a future generation its more detailed taxonomic treatment. Meanwhile, I use the subspecific name *decolor* to cover all the specimens from the region concerned.

(189b) ***Leptotila ochraceiventris* Chapm.**

Leptotila ochraceiventris CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 317 (Zaruma, Ec.).

Chone, 1 ♀; Rio Coco (3,000 ft.) 1 ♀; Daule, 1 ♂; Zaruma, 2 ♂, 2 ♀, 1 ?; Santa Rosa, 1 ♂; Alamor, 1 ♀; Guainche, 1 ♂.

RANGE.—Southwestern Ecuador; chiefly Subtropical Zone, but found also in the tropics.

Specific Characters.—Not closely related to any described species of *Leptotila*; whole abdominal region rich ochraceous buff as in *Oreopeleia montana*; head without gray, the forehead pale pinkish buff; a clearly defined vinaceous breast-band.

This strongly marked species appears to be not uncommon in the forests of southwestern Ecuador from Chone to the Peruvian border. No close ally of it is known.

(191) ***Leptotila rufaxilla dubusi* Bonap.**

Leptotila dubusi BONAP., Consp. Av., III, 1854, p. 74 (Rio Napo); SCL., 1858a, p. 16 (Napo).

Leptotila rufaxilla, S. & F., 1900, p. 36 (Gualaquiza; Valle del Zamora; Valle del Rio Santiago).

Zamora, 1 ♂; Rio Suno, 5 ♂, 5 ♀; below San José, 1 ♀.

RANGE.—Tropical Zone: the species, Amazonia; the race, eastern Ecuador and southeastern Colombia, east to the upper Orinoco (Mt. Duida).

Rio Suno birds, which are doubtless typical, agree with a series from southeastern Colombia and one from the foot of Mt. Duida, but the Zamora bird is much deeper, more rufescent above, and, possibly, represents another race.

(200) ***Leptotila pallida* Berl. & Tacz.**

Leptotila pallida BERL. & TACZ., P. Z. S., 1883, p. 575 (Chimbo, Ec.); 1885, p. 111 (Yaguachi); S. & F., 1900, p. 36 (Rio Peripa); L. & R., 1922, p. 18 (below Nono).

Leptotila pallida, HART., 1902, p. 603 (Ventana).

Bucay Junction; Chanchan and Chiguancay (Rhoads).

Esmeraldas, 3 ♀; Chone, 2 ♀; Naranjo, 1 ♂; Puente de Chimbo, 2 ♀; Rio de Oro, 1 ♂; Santa Rosa, 1 ♀.

RANGE.—Colombian-Pacific Fauna from southern Ecuador to Nóvita, Col.

A distinct, not uncommon, forest-inhabiting species. In specimens from north of Chimbo, the gray of the nape is more extensive than in those from Chimbo and southward.

(201) *Osculatia saphirina* Bonap.

Osculatia saphirina BONAP., Consp. Av., II, 1854, p. 73 (Rio Napo); S. & F., 1900, p. 36 (Valle del Rio Santiago); GOODF., 1902, p. 228 (Rio Suno; Rio Coca).

Upper Rio Suno, 4 ♂, 2 ♀; below San José, 2 ♂.

RANGE.—Tropical Zone at the eastern base of the Andes in Ecuador.

(202) *Osculatia purpurata* Salv.

Osculatia purpurata SALV., Ibis, 1878, p. 448 (Ecuador); L. & R., 1922, p. 18 (Santo Domingo; 'Piganta' [?]).

Osculatia purpurea, HART., 1898, p. 504 (Paramba); GOODF., 1902, p. 228 (Santo Domingo).

Osculatia saphirina purpurea, HART., 1902, p. 603 (Cachaví; Lita; Rio Japayo [= Sapayo]).

Osculatia saphirina purpurata, MEN., 1911, p. 7 (Santo Domingo).

RANGE.—Colombian-Pacific Fauna northward to the Chocó.

Although this species and *O. saphirina*, the only known members of their genus, are unquestionably representative forms, I feel that they should be treated as species rather than subspecies. This conclusion is reached, not because their ranges are widely separated, but because of the extent and character of the differences separating them. Our only specimens are from Colombia.

(204) *Oreopeleia montana* (Linn.)

Columba montana LINN., Syst. Nat., I, 1758, p. 163 (Jamaica).

Geotrygon montana, S. & F., 1900, p. 36 (Valle de Zamora; Valle del Rio Santiago; Rio Peripa); HART., 1902, p. 603 (Paramba); MEN., 1911, p. 8 (Pachijal).

Oreopeleia montana, L. & R., 1922, p. 19 (Gualea; Nanegal).

Esmeraldas, 4 ♂, 2 ♀; Chone, 1 ♀; Rio de Oro, 2 ♂, 1 ♀; Puente de Chimbo, 1 ♂; Santa Rosa, 1 ♀; Rio Suno, 9 ♂, 6 ♀; below San José, 5 ♂, 3 ♀; Baeza, 1 ♀.

RANGE.—Tropical Zone, Brazil to Mexico and the West Indies; both western and eastern Ecuador.

A wide-ranging species which, even under the influence of insular environment, shows no appreciable geographic variation.

(205) *Oreopeleia veraguensis* (Lawr.)

Geotrygon veraguensis LAW., Ann. Lyc. Nat. Hist. N. Y., VIII, 1866, p. 349 (Veragua).

Geotrygon veraguensis cachaviensis HART., 1898, p. 504 (Cachaví); 1902, p. 603 = *Geotrygon veraguensis* (San Javier; Rio Japayo [= Sapayo]).

Oreopeleia veraguensis, CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 214 (crit.).

RANGE.—Colombian-Pacific Fauna from at least northwestern Ecuador (and doubtless farther south) to Costa Rica.

A distinct species of which no near relatives are known. We have no Ecuadorean specimens.

(206) *Oreopeleia bourcieri bourcieri* (Bonap.)

Geotrygon bourcieri BONAP., Consp. Av., II, 1854, p. 71 (Valle Lloa, Ec.); SCL., 1860a, p. 72 (Pallatanga); B. & T., 1884, p. 312 (La Union); 1885, p. 111 (Machay; Baños; San Rafael); HART., 1898, p. 504 (Paramba); 1902, p. 603 (Paramba); S. & F., 1900, p. 37 (Gualea; San José); GOODF., 1902, p. 228 (below Baeza).

Geotrygon bourcieri bourcieri, CHUBB, 1919, p. 46 (Cangunana).

Geotrygon bourcieri baeza CHUBB, Bull. B. O. C., XXXVIII, 1917, p. 33 (Baeza, Ec.); Ibis, 1919, p. 47.

Oreopeleia bourcieri, L. & R., 1922, p. 19 (Piganta; Alonguinche).

Pagana, near Chunchi (Rhoads).

Piganta, Mojanda Mts., 1 ♂, 1 ♀; Sinche, 1 ♂; near Mindo, 1; Zaruma, 2 ♂, 1 ♂ im., 5 ♀; 3 ♂ int. toward *subgrisea*, 2 ♀ int. toward *subgrisea*, 1 ? int. toward *subgrisea*; Zamora, 1 ♀; Sabanilla, 1 ♂, 3 ♀; Baeza, 10 ♂, 7 ♀; Sumaco, 8 ♂, 2 ♀.

RANGE.—Subtropical Zone: the species, Colombia and Ecuador; the race, the same except from Zaruma, Ec., southward.

Common in the forests of both the eastern and western Subtropical Zone. Comparison with topotypical material in the British Museum shows that specimens from the western Andes of Colombia are typical. The type of *Oreopeleia bourcieri baeza* Chubb, examined by me in the British Museum, is slightly grayer below than a topotypical specimen from Mindo, but the difference impresses me as being individual rather than racial. This opinion is supported by the fact that eight topotypical specimens from Baeza and five specimens from the Rio Zamora, on the

Amazonian slope, are not separable from Colombian and west Ecuadorean birds.

An excellent series from Zaruma, on the Pacific slope, is, on the whole, intermediate between true *bourcieri* and *subgrisea* and conclusively proves the complete intergradation of these two forms.

(206a). *Oreopeleia bourcieri subgrisea* Chapm.

Oreopeleia bourcieri subgrisea CHAPM., Am. Mus. Novit., 31, 1922, p. 2 (Alamor, Ec.).

Alamor, 1♂, 1 ♀; Celica, 1♂.

Subspecific Characters.—Similar to *Oreopeleia bourcieri bourcieri*, but underparts as in *O. frenata*, the breast pale drab-gray instead of cinnamon-drab or drab; center of abdomen slightly paler than breast, pale smoke-gray rather than drab as in most specimens of *bourcieri*, lower tail-coverts grayer.

RANGE.—Subtropical Zone, southwestern Ecuador.

This is an intermediate form between *O. bourcieri* and *O. frenata* of Peru and Bolivia, resembling the former above, the latter below. Intergradation of these species is, however, merely suggested and not proven, but toward the north the intergradation of *subgrisea* with *bourcieri* is established by intermediate specimens from the vicinity of Zaruma.

(207) *Oreopeleia erythropareia* (Salvad.)

Geotrygon erythropareia SALVAD., Cat. Bds. B. M., XXI, 1893, p. 578 ("Ecuador," type; Jima; Rosario).

RANGE.—Subtropical Zone, eastern Ecuador (known only from specimens in the British Museum).

Examination of the type and the Jima specimen of this species in the British Museum convinces me that it is specifically distinct from *bourcieri*. Were it not for the fact that true *bourcieri* has been found on the same Andean slope and both to the north and south of the locality at which Buckley's specimen of *erythropareia* is said to have been taken, the latter might be considered as a representative of the former. Possibly, like *Buarremon inornata*, it may have a very restricted distribution in the heart of the range of the species it represents.

The type of *erythropareia* differs from typical *bourcieri* in having the under tail-coverts, as well as flanks, deep snuff-brown, the breast strongly suffused with the same color, the frontal, malar, and nuchal regions kaiser-brown, the crown darker, the whole lower back, upper tail-coverts, secondaries, and wing-coverts more rufescent.

ORDER OPISTHOCOMIFORMES

FAMILY OPISTHOCOMIDÆ. HOATZIN

(212) *Opisthocomus hoazin* (P. L. S. Müll.)

Phasianus hoazin P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 125 (Cayenne);
OGILVIE-GRANT, Cat. Bds. B. M., XXII, 1893, p. 524 (Rio Copataza).

RANGE.—Amazonia; unknown west of the Andes.

We have no Ecuadorean specimens.

ORDER RALLIFORMES

FAMILY RALLIDÆ. RAILS, GALLINULES, COOTS

(215) *Rallus longirostris cypereti* Tacz.

Rallus cypereti TACZ., P. Z. S., 1877, p. 747 (Santa Luzia; Tumbes, Peru).

Rallus longirostris, SHARPE, Cat. Bds. B. M., XXIII, 1894, p. 10 (Tumbes).

RANGE.—The species, tidal shores and marshes from Brazil and Peru to Connecticut and California; the race, northwestern Peru (and western Ecuador ?).

We have no specimens.

(216) *Rallus virginianus æquatorialis* Sharpe

Rallus æquatorialis SHARPE, Cat. Bds. B. M., XXIII, 1894, p. 18, pl. ii, fig. 1 (Ecuador); GOODF., 1902, p. 230 (Santa Carolina marshes, near Quito); CHUBB, 1919, p. 47 (Cañar; Antisana, 1,200 ft. [= Antisana, 12,000 ft.]).

Rallus virginianus æquatorialis, L. & R., 1922, p. 19 (Yaguarcocha; Illiniza).

Rallus virginianus, B. & T., 1884, p. 313 (Yoacsi); 1885, p. 112 (Riobamba).

Hacienda Garzon (Rhoads).

La Carolina, 1 ♂ ad. (Feb. 20); Yaguarcocha, 1 im. (June 20); near Guallabamba, 1.

RANGE.—Temperate Zone: the species, North America south on the Andes to Magellan; the race, Ecuador; recorded also from Bogotá and Lima.

The male from the marshes of La Carolina at Quito has the lower tail-coverts almost entirely white, a condition I have not found in a large series of true *virginianus*. The Guallabamba bird (which is without date), however, has the lower tail-coverts as in true *virginianus*,

but it agrees with the La Carolina specimen in being duller below than true *virginianus* and in having the axillars practically unbarred. Either, therefore, the under tail-coverts are not always white in *æquatorialis* or the Guallabamba bird is not *æquatorialis*. I incline to the former belief.

The Yaguarcocha specimen, taken June 6, is in the post-juvenal molt and still retains enough of the nestling plumage to show that it was born in the vicinity of its capture.

The 'Bogotá' record for this form, based on a juvenal specimen in the British Museum, proves to have been based on a specimen which probably came from Ecuador.

Rallus virginianus antarcticus is the form of the South Temperate Zone, but, except for the Lima record, the species appears to be unknown from Ecuador to Argentina.

(217) ***Rallus semiplumbeus* Scl.**

Rallus semiplumbeus SCL., P. Z. S., 1856, p. 31 (Bogotá); S. & F., 1900, p. 39 (Laguna di Kingora).

RANGE.—Temperate Zone of Colombia and Ecuador (only one Ecuadorean record).

We have no Ecuadorean specimens.

(224) ***Pardirallus nigricans nigricans* (Vieill.)**

Rallus nigricans VIEILL., Nouv. Dict. d'Hist. Nat., XXVIII, 1819, p. 560 (Paraguay).

Limnopardalus nigricans, S. & F., 1900, p. 40 (Gualaquiza).

Mirador, 1 ♀ im.

RANGE.—Tropical Zone; Argentina to Colombia.

The above and specimens from the Cauca Valley of Colombia are apparently not separable from *nigricans*. I question, therefore, the validity of *humilis* Berl. & Stolz. from eastern Peru.

(227) ***Aramides wolfei* Berl. & Tacz.**

Aramides wolfei BERL. & TACZ., P. Z. S., 1883, p. 576 (Chimbo, w. Ec.); S. & F., 1900, p. 40 (Rio Peripa); HART., 1902, p. 604 (Pambilár; Carondelet); CHUBB, 1919, p. 51 (Mindo).

Below Mindo, 1 ♂, 2 ♀; Manglar Alto (1,500 ft.), 1 ♀; Rio del Oro, 1 ♀; Naranjo, 1 ♂; La Chonta, 1 ♂.

RANGE.—Colombian-Pacific Fauna.

A very distinct species known only from western Ecuador, but it doubtless ranges northward into Colombia. The absence of *Aramides cajanea* from this region suggests that, in spite of its distinctness, *wolfi* may be a representative of that bird.

(228) *Aramides axillaris* Lawr.

Aramides axillaris LAWRE., Proc. Acad. Nat. Sci. Phila., 1863, p. 107 (Barranquilla, Col.; type No. 45655, A. M. N. H. examined).

Puna Vieja, July, 2 ♀ im.; Jambeli, 1 ♂ ad.; La Chonta, July, 1 ♀ im.

RANGE.—Coastal regions; Ecuador north to Mexico and east to Trinidad.

Common in the mangroves on the southern part of Puna Island, on Jambeli, and doubtless elsewhere along the coast. Cherrie and Gill, however, secured a specimen at La Chonta (alt. 2,000 ft.), above Santa Rosa, showing that the species is not confined to tidal areas. In July, 1922, numbers of immature birds were observed in pursuit of 'fiddler' crabs on the flats exposed by the tide, but the adults were not seen to leave the shelter of the mangroves.

(230) *Aramides cajanea cajanea* (P. L. S. Müll.)

Fulica cajanea P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 119 (Cayenne).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone: the species, Paraguay to Mexico; the race, Guianas to eastern Ecuador.

This specimen agrees with a series from Trinidad. I am unacquainted with *A. c. peruviana* Cory (Field Mus. Pub., No. 182, 1915, p. 296; Moyabamba). With the collection of this specimen, *cajanea* and *calopterus* were for the first time found at the same place.

(234) *Aramides calopterus* Scl. & Salv.

Aramides calopterus SCL. & SALV., P. Z. S., 1878, p. 439, pl. xxviii (Sarayacu, Ec.).

Rio Suno, 2 ♂, 2 ♂ im., 4 ♀; below San José, 2 ♂, 3 ♀.

RANGE.—Tropical Zone of eastern Ecuador.

A very distinct species, most nearly related to *A. saracura*. The immature birds have the bill and legs blackish and only a trace of rufous on the neck.

(235a) *Amaurolimnas concolor guatemalensis* (Lawr.)

Corethrura guatemalensis LAW., Proc. Acad. Nat. Sci. Phila., 1863, p. 106 (Guatemala).

Amaurolimnas concolor, HART., Nov. Zoöl, IX, 1902, p. 604 (San Javier).

RANGE.—Tropical Zone; Central America south to western Ecuador, Guiana, and Brazil.

In Ecuador this Rail has been found only in the northwestern part of the republic. I have elsewhere¹ given reasons for the recognition of a continental form of this species, true *concolor* being presumably confined to the island of Jamaica.

(236) *Anurolimnas castaneiceps* (Scl. & Salv.)

Porzana castaneiceps SCL. & SALV., P. Z. S., 1868, p. 453 (Rio Napo); GOODF., 1902, p. 230 (Archidona).

Rio Suno, 7 ♂, 3 ♀; Zamora, 1 ♂; below San José, 4 ♀.

RANGE.—Tropical Zone; eastern Ecuador and southeastern Colombia.

A female from La Morelia, Colombia, is paler throughout than any of our seven Ecuadorean birds, and its more slender feet and tarsi are brownish flesh-color instead of black as in the Ecuadorean specimen.

NOTE.—*Anurolimnas huxwelli* (Scl. & Salv.) of northeastern Peru has been recorded from southeastern Colombia and doubtless occurs in eastern Ecuador.

(238) *Porzana carolina* (Linn.)

Rallus carolinus LINN., Syst. Nat., 1758, p. 153 (Hudson Bay).

Porzana carolina, TACZ., 1877, p. 748 (Santa Luzia, Jan. 12, 15); B. & T., 1884, p. 313 (Cayandeled); L. & R., 1922, p. 19 (La Carolina, Jan., Feb., March).

Chone, 1 ♂, 1 ♀ (Feb. 2, 3); Yaguarcocha, 1 ♀ (March 10).

RANGE.—Breeds in northern United States and southern Canada; winters as far south as Peru. Winters in Ecuador from the coast to the tableland.

(245) *Creciscus exilis exilis* (Temm.)

Rallus exilis TEMM., Pl. Col. V, 1831, pl. 523 (Peru).

Esmeraldas, 1 ♂ juv.

RANGE.—Tropical Zone: the species, Amazonia to Honduras.

A specimen changing from juvenal to adult plumage adds this Amazonian species to the known fauna of Ecuador. The species has not

¹ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 217.

been found in Colombia but appears in Honduras as *Creciscus exilis vagans* (Ridgw.), a form distinguished only by its alleged larger size, and the validity of which is questioned by Sharpe (Cat. Bds. B. M., XXIII, 1894, p. 139).

Our specimen is smaller than one from near Manáos, but this may be due to its immaturity.

(247) *Creciscus œnops* (Scl. & Salv.)

Porzana œnops SCL. & SALV., P. Z. S., 1880, p. 161 (Sarayacu, Ec.).

RANGE.—Tropical Zone, eastern Ecuador and eastern Colombia.

Known only from the Amazonian Fauna of Ecuador and Colombia where it is presumably a representative of the widespread *albigularis melanophæus* group. We have no Ecuadorean specimens.

(248) *Creciscus albigularis* (Lawr.)

Corethrura albigularis LAWR., Ann. Lyc. Nat. Hist. N. Y., VII, 1861, p. 302 (Panama).

Creciscus albigularis, HART., 1902, p. 604 (San Javier); MEN., 1911, p. 8 (Santo Domingo).

Esmeraldas, 1 ♂, 2 ♀; Rio de Oro, 1 ♂, 1 ♀.

RANGE.—Colombian-Pacific Fauna and northward to Central America.

Ecuadorean specimens average slightly smaller than the types with which I have compared them.

(254) *Neocrex colombianus* Bangs

Neocrex colombianus BANGS, Proc. Biol. Soc. Wash., XII, 1898, p. 171 (Santa Marta).

Neocrex uniformis HART., Nov. Zoöl., VIII, 1901, p. 369 (Pambilár; San Javier).

RANGE.—Colombian-Pacific Fauna northward to Santa Marta, Col.

We have no Ecuadorean specimens but those from Barbacoas, Colombia, agree with the type of *uniformis* Hart. which I have examined at Tring.

(255a) *Gallinula galeata pauxilla* Bangs

Gallinula chloropus pauxilla BANGS, Proc. N. E. Zoöl. Club, V, 1915, p. 96 (Guabinas, Cauca River, Col.).

Gallinula galeata, S. & F., 1900, p. 40 (Vinces); L. & R., 1922, p. 19 (La Carolina; Imbabura).

Chone, 3 ♂, 2 ♀; Lago San Pablo, 1 ♂, 2 ♀.

RANGE.—The species from Argentina to Canada.

Our Ecuadorean specimens average browner above and have smaller frontal shields than a series from the Cauca Valley. We have no authentic specimens of *galeata galeata*.

(258) *Ionornis martinica* (Linn.)

Fulica martinica LINN., Syst. Nat., I, 1766, p. 259 (Martinique, W. I.).

Ionornis martinica, L. & R., 1922, p. 20 (La Carolina).

Chone, 3 ♂ ad., 1 ♂ im., 2 ♀ ad., 1 ♀ im.

RANGE.—Brazil to southern United States. In Ecuador chiefly Tropical Zone but recorded from the tableland.

(261) *Fulica ardesiaca* Tsch.

Fulica ardesiaca TSCH., Arch. für Naturg., I, 1843, p. 389 ("ad fluminum ripas et in Antium lacunis"); HART., 1898, p. 503 (Lake Yaguarcocha); S. & F., 1900, p. 40 (Laguna di Kingora; Laguna di Yaguarcocha); GOODF., 1902, p. 230 (marshes near Quito); CHUBB, 1919, p. 55 (Lago Colta); L. & R., 1922, p. 20 (Lake Mica; Yaguarcocha; La Carolina; said to occur in all small lakes 9,000 to 14,000 ft. alt.).

Fulica sp., S. & F., 1900, p. 41 (Lago di Culebrillas).

Fulica sp. inc., GOODF., 1902, p. 230 (lakes near Cotopaxi).

Antisana, 3 ♂, 1 ♀; 'Ecuador,' 2.

RANGE.—Paramo and Temperate Zones, from Chile to Ecuador.

Three of our specimens have the white margin to the outer primary and white tips to the secondaries which are found in some but not all Peruvian examples.

Dr. Hartert writes me that the specimens recorded by Goodfellow (now in the Museum at Tring) "do not in the least differ from other *Fulica ardesiaca*, including a ♂ and a ♀ from the marshes near Quito."

(265a) *Fulica americana columbiana* Chapm.

Fulica americana columbiana CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 170 (Bogotá Savanna).

Yaguarcocha, 1 ♂.

RANGE.—Temperate Zone; northern Ecuador to the Bogotá region.

This specimen is smaller than topotypical *columbiana* and may represent an undescribed race of this species, which has not before been recorded from Ecuador.

FAMILY HELIORNITHIDÆ. FINFEET

(267) *Heliornis fulica* (Bodd.)

Colymbus fulica BODD., Tabl. Pl. Enl., 1783, p. 54. (Cayenne)

Heliornis fulica, S. & F., 1900, p. 41 (Rio Peripa).

RANGE.—Tropical Zone from Brazil to Honduras; known from both eastern and western Ecuador.

We have no Ecuadorean specimens.

ORDER PODICIPEDIFORMES

FAMILY PODICIPEDIDÆ. GREBES

(268) *Colymbus dominicus brachyrhynchus* Chapm.

Colymbus dominicus brachyrhynchus CHAPM., Bull. A. M. N. H., XII, 1899, p. 255 (Matto Grosso, Brazil).

Podiceps dominicus, S. & F., 1900, p. 49 (Vinces).

Chone, 2♂, 2♀, 1?

RANGE.—The species, Argentina to southern Texas; the race, Tropical Zone throughout South America.

Recorded only from western Ecuador, though it doubtless also occurs in the Amazonian Fauna. Our series agrees with typical specimens.

(272) *Colymbus calipareus juninensis* (Berl. & Stolz.)

Podiceps calipareus juninensis BERL. & STOLZ., Ibis, 1894, p. 112 (Lake Junin).

Podiceps juninensis, S. & F., 1900, p. 49 (Lago di Culebrillas; Lago di Yaguarcocha; Vallevecioso).

Podiceps calipareus, L. & R., 1922, p. 20 (Lake Mica).

Lake Mica, Antisana, 1♂, 1♀.

RANGE.—The species, Magellan to Ecuador; the race, Paramo Zone of Peru and Ecuador.

A race of the Paramo Zone where it represents the form of the South Temperate Zone. It was added to the recorded fauna of Ecuador by Festa whose capture of it at Yaguarcocha marks the known northern limits of the range of the species. Our specimens agree with others from Peru.

(276) ***Podilymbus podiceps antarcticus* (Less.)**

Podiceps antarcticus LESS., Rev. Zoöl., 1842, p. 209 (Valparaiso, Chile).

Podilymbus podiceps, HART., 1898, p. 502 (Yaguarcocha); L. & R., 1922, p. 21 (La Carolina, Feb. 7).

Chone, 1 ♀ ad. (Dec. 17); Lago San Pablo, 1 ♀ (March 20); 1 ♀, ovaries enlarged (March 20).

RANGE.—The species, greater part of the Western Hemisphere; the race, South America; Tropical to Temperate Zone.

South American specimens have slightly longer, thicker bills and darker underparts. The feathers of the sides are often largely fuscous; those of the breast and abdomen have fuscous bases or centers which show through the white tips. These characters are more pronounced in adult than in immature birds and opposite extremes practically overlap, it being possible to match two of our 26 South American birds with North American specimens. But in our large series from throughout the range of the species there are no South American birds with pure white, satiny underparts such as are common in North America; nor in our North American series do I find a specimen as dusky below as the prevailing type in South America. Lesson's name *antarcticus*, based on the Chilean bird, is evidently applicable to the species throughout South America. In addition to our examples from Chile, the following South American specimens have been compared with a large number from North America. I have seen none from Middle America or the West Indies.

Chile: Cautin, 1 ♂, ad., 3 ♀ ad. Argentina: Embarcacion, Salta, 3 ♂ ad., 5 ♀ ad.; San Juan, 1 ♂; Rosario de Lerma, 1 ♂ ad.; Perico, Prov. Jujuy, 1 ♀. Colombia: Cali, 1 ♀ ad.; Fomeque, near Bogotá, 1. Venezuela: San Antonio, 1 ♂ ad., 2 ♂ im., 1 ♀ im., 2 ? im.

The bills in the South American specimens measure: Length from posterior end of nostril, 4 males, 18.3 to 19 mm.; 4 females, 16 to 16.6 mm.; depth at posterior margin of nostril, 4 males, 13 to 14.5 mm.; 4 females, 11.2 to 11.5 mm.

ORDER PROCELLARIIFORMES

FAMILY PROCELLARIIDÆ. PETRELS, SHEARWATERS,
AND ALBATROSSES(286) *Oceanites gracilis gracilis* (Elliot)

Thalassidroma gracilis ELLIOT, Ibis, 1859, p. 391 (west coast of America = "Chile")

RANGE.—The species, eastern Pacific from the Galapagos to Chile; the race, Pacific coast from Ecuador to Chile.

Observed by Murphy off Santa Elena, February 11, 1925. We have specimens from off Talara, Peru, and southward to Valparaiso.

(286a) *Hydrobates tethys kelsalli* (Lowe)

Thalassidroma tethys kelsalli LOWE, Bull. B. O. C., XLVI, 1925, p. 6 (Ancon, Peru).

Lat. 1° S., offshore, 2♂, 2♀; sexual organs not enlarged (Sept. 13).

RANGE.—The species, central eastern Pacific; the race, coastal region from Panama to Peru.

On the night of September 13, 1922, the four specimens of this species above recorded flew aboard the steamer on which the members of our expedition of that year were returning from Guayaquil to Panama. From early morning until night of that day, while voyaging northward along the coast, from 3 to 10 miles offshore, neither this nor any other white-rumped Petrels had been observed.

(286b) *Oceanodroma markhami* (Salv.)

Cymochorea markhami SALV., P. Z. S., 1883, p. 430 (coast of Peru).

Lat. 1° S. offshore, 2♂, 1? (Sept. 13).

RANGE.—Central eastern Pacific.

This species, previously unknown from Ecuador, was abundant off the coast on September 13 and 14, 1922. It was first observed early on the morning of the 13th when we were northbound, several hours south of Santa Elena. It continued to be numerous throughout the day, but was not observed after the 14th. During the 13th we were never more than 10 miles offshore, and at Santa Elena sailed within 3 to 4 miles of the coast. The birds followed the wake of the steamer, never, however,

approaching it nearer than 150 to 200 yards. The specimens secured flew aboard the steamer soon after dark on the night of the 13th.

Murphy observed this species off the central coast of Ecuador and Gulf of Guayaquil, December 5 and 6, 1924, and off Santa Elena, February 6, 1920.

(286c) *Oceanodroma hornbyi* (Gray)

Thalassidroma hornbyi GRAY, P. Z. S., 1853, p. 62 ("Northwest coast of America" = west coast of South America; see Murphy, *The Auk*, 1922, pp. 60-65).

Lat. 1° S., offshore, 1 ♀; ovaries not enlarged (Sept. 13, 1922); Gulf of Guayaquil, 1 ♀ (Jan. 16, 1925).

RANGE.—Pacific coast, from northern Chile to Ecuador.

Throughout the day of September 13, 1922, I observed a score or more Hornby's Petrels from the deck of the S. S. 'Imperial' as we voyaged northward from some three hours south of Santa Elena and from 3 to 10 miles off the coast. Unlike *Oceanodroma markhami*, the birds did not follow the wake of the vessel but flew freely to and fro without reference to our course. Evidently they were in pursuit of fish, since the stomach of the specimen which flew aboard the ship after nightfall contained small fish. This specimen, which is in fresh, unworn plumage, introduces the species to the recorded fauna of Ecuador.

Since the above was written, we have acquired a second Ecuadorean specimen of this species taken by Charles L. Fagan in the Gulf of Guayaquil.

(292) *Puffinus creatopus* Coues

Puffinus creatopus COUES, Proc. Acad. Nat. Sci. Phila., 1864, pp. 131, 144 (San Nicholas Island, Calif.).

RANGE.—Eastern Pacific Ocean, nesting on islands off Chile; migrating northward to California.

Observed by Murphy near La Plata Island, September 5, 1919.

(293) *Puffinus griseus griseus* (Gmel.)

Procellaria griseus GMEL., Syst. Nat., I, 1789, p. 564 (Southern Hemisphere, from Lat. 35°-50° S.).

Gulf of Jambeli, 2 ♂, testes small, 1 ? (July 16, 1922).

RANGE.—Atlantic and Pacific Oceans; probably breeding in southern latitudes.

This widely distributed species doubtless occurs in numbers off the

coast of Ecuador during its migration, but the first actual records of its presence were made by our expedition of 1922, when scattered individuals were found in July in the lower part of the Gulf of Jambeli. These birds were resting on the water and their apparent reluctance to take flight at the approach of our launch suggested that they had been induced to abandon the open sea and seek these comparatively quiet, almost land-locked waters by some indisposition. The specimens taken, however, seemed to be in good condition and were not molting. Several skeletons of this species were picked up on the beach of Jambeli Island. Observed by Murphy off Santa Elena, February 11, 1925.

(297a) *Halocyptena microsoma* Coues

Halocyptena microsoma COUES, Proc. Acad. Nat. Sci. Phila., 1864, p. 79 (San José del Cabo, Lower Calif.); S. & F., 1900, p. 48 (Lat. $1^{\circ} 30'$ N. off coast of Ecuador, 1 ♂, 1 ♀, February).

RANGE.—American coasts from Lower California to Ecuador.

Known in Ecuador only from Festa's record. We have no specimens.

(301a) *Pterodroma phæopygia* (Salv.)

Æstrelata phæopygia SALV., Trans. Zoöl. Soc., IX, 1876, p. 507, pl. 88, fig. 1 (Galapagos).

RANGE.—Galapagos and eastward to coasts of Ecuador and northern Peru.

Near Cape San Lorenzo, September 4, 1919; off northern Ecuador, December 5, 1924; off Gulf of Guayaquil, December 6, 1924, and January 31, 1925 (Murphy).

(312) *Diomedea irrorata* Salv.

Diomedea irrorata SALV., P. Z. S., 1883, p. 430 (Callao Bay, Peru); Cat. Bds. B. M., XXV, 1896, p. 445, pl. viii.

RANGE.—Galapagos and eastward to the coasts of Ecuador and northern Peru.

Dr. Murphy has examined, on La Plata Island, a skin of an individual of this species shot by the keeper of the La Plata lighthouse in November, 1924; and he also observed it off the Gulf of Guayaquil, December 6, 1924, and collected two specimens off Talara in January.

ORDER LARIFORMES

FAMILY LARIDÆ. TERNS, SKIMMERS, GULLS, SKUAS

(318) *Chlidonias nigra surinamensis* (Gmel.)

Sterna surinamensis GMEL., Syst. Nat., I, 1789, p. 604 (Surinam).

Coast of Manaví, Feb. 13, 1913, 1 ♂.

RANGE.—Breeds in northern United States and southern Canada; winters as far south as Chile.

A winter visitant to the west coast of South America as far south as Chile. This specimen is in winter plumage, except for the wings, which are in full molt.

(319) *Phaëtusa chloropoda* (Vieill.)

Sterna chloropoda VIEILL., Nouv. Dict. d'Hist. Nat., XXXII, 1819, p. 171 (Paraguay).

Phaëtusa magnirostris, B. & T., 1885, p. 112 (Riobamba); SAUNDERS, Cat. Bds. B. M., XXV, 1896, p. 23 (Guayaquil River).

Sterna magnirostris, MACFARLANE, Ibis, 1887, p. 209 (Guayaquil).

RANGE.—South America from the La Plata to the Caribbean; ranging up the larger rivers.

A widely distributed species in tropical America, the occurrence of which on the Ecuadorean tableland at Riobamba is surprising. We have no Ecuadorean specimens.

(320) *Gelochelidon nilotica aranea* (Wils.)

Sterna aranea WILS., Amer. Orn., VIII, 1814, p. 6 (Cape May, N. J.).

Gelochelidon nilotica, HART., 1902, p. 604 (near Vaqueria).

Gulf of Jambeli, 2 ♂ (July 17, 18, testes slightly enlarged), 1 ♀; Vaqueria, 1 ♂ (Sept. 13); 1 ♀ (Sept. 3); Puna Is. (Feb. 26, 1925), observed by Murphy.

RANGE.—The species, nearly cosmopolitan; the race, breeds in eastern United States and southward; winters as far south as Patagonia.

We found this Tern to be not uncommon in the Gulf of Jambeli in July, 1922. Two specimens taken at that time are in full plumage with a complete black crown, and it is probable that this species may breed in Ecuador.

Gelochelidon nilotica grönvaldi, described by Matthews from 'South America' (no localities or type mentioned or references given), is said to

have a culmen measuring from 42 to 45 mm. Hartert (Vög. Pal., Fauna 2, p. 1091) includes Ecuador in the range of this proposed form, but my five specimens are not separable from the North American race in which the wing is apparently always shorter than in true *nilotica*. The culmen in the Ecuadorean birds measures 34 to 39 mm.; the wing, 280 to 295 mm.

(321) *Sterna maxima* Bodd.

Sterna maxima BODD., Tabl. Pl. Enl., 1783, p. 58 (Cayenne); S. & F., 1900, p. 48 (Santa Elena); TACZ, 1877, p. 749 (Santa Luzia).

Jambeli Is., ♂ (July 20); Santa Elena, 2♂ (Feb. 14).

RANGE.—Tropical coasts north to Virginia.

This species was not uncommon in the Gulf of Jambeli in July, 1922. The one specimen taken is in worn, non-breeding plumage; the wing-quills, however, are new and the outer primary is just leaving its sheath.

Common on the coast and in the Gulf of Guayaquil, December, 1924, to March, 1925 (Murphy).

(323) *Sterna hirundo* Linn.

Sterna hirundo LINN., Syst. Nat., 1758, p. 137 (Sweden).

Jambeli Is., 1♂ (Nov. 1); 1♂ (July 20); 1♀ (July 20), all with sexual organs not enlarged.

RANGE.—Breeds in Northern Hemisphere; winters south to Brazil and southern Africa.

Common in July, 1922, in the lower part of the Gulf of Jambeli, where it was also taken in November. The November specimen is an adult male in very worn plumage. The bill is black, horn-tipped; the feet reddish; the forehead is mixed black and white, but the remainder of the plumage is evidently that of the preceding summer. The July specimens also have black bills and reddish feet. The forehead is white; the wings are in molt. In a female all the old quills have been lost and the new ones are fully developed, except the outer primary which is but half-grown. A male is in essentially similar plumage but still retains the outer primary of the preceding plumage. In both specimens the tail is in molt.

This species has not before been recorded from Ecuador, and although it is said to have bred on Aruba and Bonaire Islands, off the coast of Venezuela (Bent, Bull. No. 113, U. S. Nat. Mus.), I believe that these

July Ecuadorean specimens, like the northern breeding shore-birds we found there in July, are barren birds which have lacked the physiological impulse to migrate.

(323a) *Sterna paradisæa* Brünn.

Sterna paradisæa BRÜNN., Orn. Bor., 1764, p. 46 (Christiansøe Island, Denmark).

Sterna macroura, TACZ., 1877, p. 749 (Tumbez, Sept. 19).

RANGE.—Breeds in Arctic regions; winters southward to the Antarctic.

The specimen on which this record is based was identified by Howard Saunders.

(332) *Sterna lorata* Phil. & Landb.

Sterna lorata PHIL. & LANDB., Arch. für Naturg., I, 1863, p. 124 (Chile).

RANGE.—Pacific coast from Ecuador to Chile.

This little Tern, heretofore not recorded from Ecuador, was abundant off Santa Clara Island at the mouth of the channel of Jambeli, in July, 1922. Unfortunately, no specimens were secured; we have, however, numbers from the coast of Peru where the species has been observed near the Ecuadorean boundary. The presence of hundreds of individuals, the fact that *Sterna antillarum* is not known to nest south of the Caribbean, and the occurrence in the region of other more southern Laridæ (e. g. *Larus modestus* and *L. dominicanus*) support this identification.

(338) *Rynchops nigra cinerascens* Spix

Rynchops cinerascens SPIX, Av. Bras., II, 1825, p. 80, pl. cii (Amazon).

? *Rynchops nigra*, SCL., 1858a, p. 77 (Napo); 1860d, p. 290 (Babahoyo).

RANGE.—Amazonia and Colombian-Pacific Fauna.

Common in the Gulf of Guayaquil and at the southern end of Puna Island in February, 1925 (Murphy).

Without material for examination, I am unable to say whether Pacific Coast specimens are true *cinerascens* or *cinerascens intermedia* recently described from Nicaragua.¹

(339) *Creagrus furcatus* (Nébourg)

Larus furcatus NÉBOUX, Voy. Vénus, 1846, Atlas, pl. X ("rade de Monterey, Haute Californie" = Equatorial Pacific).

RANGE.—Galapagos and eastward to the coast of South America.

Dr. Murphy collected this species off Talara, Peru, and observed it off the Gulf of Guayaquil, December 6, 1924.

¹ Rendahl & Hjalmar, Arch. für. Zool., No. 8, 1919, p. 1.

(341) *Larus serranus* Tsch.

Larus serranus TSCH., Arch. für Naturg., I, 1844, p. 314 (Peru); S. & F., 1900, p. 48 (Cañar; Vallevecioso); GOODF., 1902, p. 232 (lakes near Cotopaxi, 13,700 ft., Chillo Valley in severe weather); MEN., 1911, p. 8 (Narihuiña); L. & R., 1922, p. 21 (Lake Mica; La Carolina, April and May, rarely).

Lake Colta (Rhoads).

Antisana, 4♂, 3♀; Lago San Pablo, 1♂.

RANGE.—Paramo and Andean Temperate Zones, down to sea-level on the coast of Peru.

Our specimens, taken on June 12 and 13, respectively, are in full breeding plumage.

(342) *Larus franklini* Rich.

Larus franklini RICH., Fauna Bor.-Am. II, 1831, p. 424, pl. 71 (Saskatchewan River).

RANGE.—Breeds from the northern central United States northward into Canada; winters from the western coast of the Gulf of Mexico to Chile.

Murphy observed a flock of Franklin's Gulls off the Gulf of Guayaquil, December 6, 1924.

(343) *Larus atricilla* Linn.

Larus atricilla LINN., Syst. Nat., I, 1758, p. 136 (Bahamas); TACZ., 1877, p. 749 (Santa Luzia, Dec. 20).

Santa Elena, ♂ juv., ♀ (Feb. 13, 14, 1925).

RANGE.—Breeds from northern South America to Maine; winters from Georgia to Chile.

Murphy found this species to be common along the coast and up the Guayas from January to March, 1925.

(347) *Larus modestus* Tsch.

Larus modestus TSCH., Arch. für Naturg., I, 1843, p. 389 (in Oceani Pacifici littoribus).

Jambeli Is., 1♂, testes much enlarged; ♀, ovary slightly enlarged; Santa Elena, 1♂ (Feb. 16).

RANGE.—Pacific coast, north as far as Ecuador.

This species was not uncommon in the Gulf of Jambeli in July, 1922. It has not before been recorded from Ecuador, but is known to breed on the coast of Peru and may do so in Ecuador. Murphy reports ob-

serving two at Guayaquil, January 29, 1925, and one on February 24; while at Manta it was present in numbers February 9, 1920.

(349) *Larus dominicanus* Licht.

Larus dominicanus LICHT., Verz. Doubl., 1823, p. 82 (coast of Brazil).

Gulf of Jambeli, 1 ♀; Santa Clara Is., 1 ♂ (Feb. 26, 1925).

RANGE.—Southern part of South America northward on the Pacific coast to Ecuador.

This Gull was abundant in the Gulf of Jambeli during July, August, and the first half of September, 1922, and was especially common in the harbor of Guayaquil; nevertheless, it has not been before recorded from Ecuador. It was observed in numbers off the Ecuador coast on September 13 as we sailed northward, but was not seen after we crossed the equator. It is probable that the northern range of both this and the preceding species on the coast of Ecuador agrees with that of the last traces of the Humboldt Current, or about the latitude of Bahia de Carques.

Doubtless the birds' abundance was the result of a northward migration during the South Temperate winter, for Murphy observed it only twice at Guayaquil in January and "several times" in Santa Elena bay in February, 1925.

ORDER CHARADRIIFORMES

FAMILY THINOCORYTHIDÆ. SEED-SNIPE

(357) *Attagis latreillii* Less.

Attagis latreillii LESS., Bull. Sci. Nat. (Ferrusac), XXV, 1831, p. "243" [=343, error in pagination], (contained in a collection sent from Buenos Aires = Ecuador).

Attagis chimborazensis SCL., 1860b, p. 82 (Panza); B. & T., 1885, p. 112 (San Rafael); S. & F., 1900, p. 45 (Mt. Corazon); GOODR., 1902, p. 231 (Pichincha between 13,000 and 15,000 ft.); RHODES, 1912, p. 148 (Paramo of Pichincha); L. & R., 1922, p. 21 (Pichincha, 14,500 to 15,000 ft.; laying, Oct. 30).

Attagis gayi latreillei, CHUBB, 1919, p. 260 (Chimborazo "5,600 meters" [!]).

Mt. Pichincha, 2 ♀; Antisana, 2 ♂, 1 ♀; Mt. Chimborazo, 1 ♂, 1 ♀.

RANGE.—Paramo Zone of Ecuador.

An apparently specifically distinct representative of *A. gayi* of Chile and Peru. The genus reaches its northern known limit in Ecuador.

(361) *Thinocorus rumicivorus pallidus* Salvad. & Festa

Thinocorus rumicivorus pallidus SALVAD. & FESTA, Bull. Mus. Tor., No. 631, 1910, p. 1 (Santa Elena, Ec.).

Thinocorus rumicivorus, S. & F., 1900, p. 45 (Santa Elena, 5 ♂ ad., 2 ♂ im., 3 ♀, Jan.).

RANGE.—Chiefly Temperate Zone: the species, Magellan region north to La Plata, Argentina, and on the Pacific coast to Ecuador; the race, coast of southwestern Ecuador.

The occurrence of this South Temperate Zone species on the coast of Ecuador is an impressive illustration of the influence exerted by the Humboldt Current on the distribution of species. Special search for this bird at Santa Elena by two of our expeditions has been unavailing, a fact which suggests that it may not be resident there.

FAMILY CHARADRIIDÆ. TURNSTONES, OYSTER-CATCHERS,
PLOVERS, STILTS, SNIPES, PHALAROPES, ETC.

(362) *Arenaria interpres morinella* (Linn.)

Tringa morinella LINN., Syst. Nat., I, 1766, p. 249 ("coast of Florida").

Arenaria interpres, S. & F., 1900, p. 42 (Puntilla de Santa Elena; Bahía de Balenita); CHUBB, 1919, p. 261 (Puna Is.).

Coast of Manaví, 1 ♂; Santa Elena, 7 ♂, 2 ♀ (Dec. 17), 1 (Feb. 25); Jambeli, 1 ♂ (Nov. 1).

RANGE.—The species, nearly cosmopolitan; the race breeds in Arctic America, winters southward on the Pacific coast to Chile.

Evidently a common winter visitant on the coast of Ecuador. It was not seen with other northern shore-birds which we secured in Ecuador in midsummer.

"Comparison of a series of Peruvian and other South American specimens with Turnstones from both coasts of North America and from Europe leads me to the conclusion that typical *interpres* is rare, if not unknown, in South America. Birds from the west coast of South America agree well with topotypes of *morinella*. This conclusion agrees with Ridgway's 'Key' (Bull. 50) but not with his text." (Murphy.)

(364a) *Hæmatopus palliatus pitanay* Murphy

Hæmatopus palliatus pitanay MURPHY, Amer. Mus. Novit., No. 194, 1925, p. 1 (Pisco Bay, Peru).

Hæmatopus palliatus, TACZ, 1877, p. 748 (Santa Luzia).

Santa Elena, 1 ♂, 1 ♀; Tembleque, 2 ♂.

RANGE.—The species, New Jersey and Lower California to Patagonia and central Chile; the race, central Chile to Ecuador.

Murphy (*loc. cit.*) states that two of these specimens are to a slight extent intermediate between *pitanay* and true *palliatu*s. The latter occurs at Panama.

About a dozen birds of this species were seen on the shores of the Gulf of Jambeli from the southern end of Puna Island to Tembleque, July 15 to 18, 1922.

(368) *Oreophilus ruficollis* (Wagl.)

Charadrius ruficollis WAGL., Isis, 1829, p. 653 (locality not given).

Oreophilus ruficollis, S. & F., 1900, p. 42 (Puntilla de Santa Elena; two specimens, Jan.).

RANGE.—South Temperate and Paramo Zones northward to Peru; coast of Ecuador.

Known from Ecuador only through Festa's capture of two specimens at Santa Elena in January. Its presence is a further illustration of the influence of the Humboldt Current in extending the range of South Temperate Zone species northward.

It is worthy of comment that although this species and *Thinocorus* have both been found on the coast of Ecuador neither has as yet been recorded from the tableland.

(369) *Hoploxypterus cayanus* (Lath.)

Charadrius cayanus LATH., Ind. Orn., II, 1790, p. 749 (Cayenne).

Hoploxypterus cayanus, SCL., 1860*d*, p. 290 (Babahoyo).

Hoploxypterus cayanus, SHARPE, Cat. Bds. B. M., xxiv, 1896, p. 135 (Sarayacu); S. & F., 1900, p. 43 (Rio Daule).

RANGE.—Tropical Zone: Uruguay to Panama.

We have no Ecuadorean specimens.

(370) *Ptiloscelys resplendens* (Tsch.)

Charadrius resplendens TSCH., Arch. für Naturg., 1843, p. 388 ("Antium incolæ" = Peru).

Vanellus resplendens, SCL., 1858*c*, p. 556 (above Punin; thousands in May; a month later only one pair); 1860*d*, p. 82 (tableland).

Ptiloscelis resplendens, S. & F., 1900, p. 43 (Malchingui; Chaupi; Vallevecioso; Aloag); MEN., 1911, p. 9 (Narihuiña); L. & R., 1922, p. 23 (Chaupicruz; Chilogalla; Antisana).

Antisana, 1♂; Mt. Pichincha, 1♀; Mt. Chimborazo 1♂, 1♀; Taraguacocha, 3♀; Bestion, 1♂.

RANGE.—Paramo and arid Temperate Zones.

During the non-breeding season this species is found in large flocks which wander irregularly over the plains of the Paramo and arid Temperate Zones; whether it is found in both zones when nesting I do not know.

(374) *Squatarola squatarola* (Linn.)

Tringa squatarola LINN., Syst. Nat., I, 1758, p. 149 ("Habitat in Europa").

Squatarola helvetica, S. & F., 1900, p. 43 (Santa Elena, Jan.).

Coast of Manaví, 1♂? (Feb. 16); Chone, 2♂ (Dec. 14); Jambeli, 1♂, 1♀ (Nov. 2); 2♀ (July 15, 20); Santa Elena 1 (Feb. 21).

RANGE.—Breeds in Arctic regions; in America, migrates southward to Peru and Brazil.

The occurrence of the Black-bellied Plover in Ecuador in winter is to be expected, but we were not prepared to find this species there in numbers during mid-July. It was, however, not uncommon along the shore of the lower part of the Gulf of Jambeli at that season, and doubtless, therefore, occurs in Ecuador throughout the year. Two females, taken respectively July 15 and 20, have the sexual organs not enlarged and are presumably barren birds which did not receive the physiological call to return to the breeding-area.

They are molting from winter dress into what would apparently have become an essentially similar plumage. The new inner primaries are about half grown in one (July 15), and somewhat less developed in the other (July 20), while the incoming feathers of the underparts are white, like those they are replacing. This is apparently a post-nuptial molt, although it seems evident that the birds neither migrated nor nested. A male taken November 2, is changing from adult breeding to winter plumage.

(376) *Aphriza virgata* (Gmel.)

Tringa virgata GMEL., Syst. Nat., I, 1789, p. 674 (King George's Sound).

Aphriza virgata, HART., 1902, p. 605 (near Vaqueria, ♂, ♀, Sept. 16).

RANGE.—Pacific coast of North and South America.

We have no Ecuadorean specimens.

(377) *Pagolla wilsonia beldingi* Ridgw.

Pagolla wilsonia beldingi RIDGW., Bull. No. 50, U. S. N. M., VIII, 1919, p. 112 (La Paz, Lower Calif.).

Ægialitis wilsoniana, Tacz., 1877, p. 330 (Tumbez; Santa Luzia).

Ochthodromus wilsoni, S. & F., 1900, p. 43 (Bahia de Ballenita).

Jambeli Is., 1 ♂ ad. (Oct. 31); 1 ♂, 3 ♀ im. (July 20).

RANGE.—Pacific coast from Lower California to Peru.

Abundant in large flocks on the shores of the lower part of the Gulf of Jambeli in mid-July, 1922. Our specimens are essentially like comparable, topotypical birds.

(379) *Oxyechus vociferus vociferus* (Linn.)

Charadrius vociferus LINN., Syst. Nat., I, 1758, p. 150 (Virginia or Carolina).

Oxyechus vociferus, S. & F., 1900, p. 43 (Rio de San Pedro, Tumbaco; Chaupi, June); ? L. & R., 1922, p. 23 (Chillo Valley; La Carolina).

Lago San Pablo, 1 ♀, ovary not enlarged (March 21).

RANGE.—The species, Chile to Canada; the race breeds in North America and winters southward to South America.

The specimen above recorded is in unworn plumage and unquestionably referable to true *vociferus*. Doubtless Festa's June record from Chaupi may be based on a specimen of *O. v. peruvianus*. Of this form we have examples, including downy young, from Paletillas, Samate, Chilaco, and Pílares, Piura, Peru. (See Chapman, *The Auk*, XXXVII, 1920, p. 106.)

(380) *Charadrius semipalmatus* Bonap.

Charadrius semipalmatus BONAP., Journ. Acad. Nat. Sci. Phila., V, 1825, p. 98 (New Jersey).

Ægialitis semipalmatus, LAW., 1869, p. 238 (Puna Is.).

Ægialeus semipalmatus, S. & F., 1900, p. 43 (Puntilla de Santa Elena, Jan.).

Esmeraldas, 1 ♂; Coast of Manaví, 1 ♀; Chone, 1 ♀; Bahia de Caraques, 1 ♂, 1 ♀; Santa Elena, 2 ♀ (Dec. 19), 2 (Feb. 21).

RANGE.—Breeds in northern North America; winters from lower California and the Gulf of Mexico south to Chile.

(381) *Charadrius collaris* Vieill.

Charadrius collaris VIEILL., Nouv. Dict. d'Hist. Nat., XXXVII, 1817, p. 136 (Paraguay).

Hiaticula collaris, SCL., 1860d, p. 290 (Babahoyo).

Hiaticula azaræ, SCL., 1860c, p. 298 (Esmeraldas).

RANGE.—Argentina to southern Mexico.

We have no Ecuadorean specimens.

(388) **Himantopus mexicanus** (P. L. S. Müll.)

Charadrius mexicanus P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 117 (Mexico).

Himantopus nigricollis, SCL., 1860d, p. 290 (Babahoyo); TACZ., 1877, p. 748 (Santa Luzia).

Himantopus mexicanus, S. & F., 1900, p. 43 (Vinces, Sept.; Rio Daule, Dec.).

Coast of Manaví, 1 ♀; Chone, 2 ♂, 1 ♀; Puna Is., 1 ♀.

RANGE.—Breeds from United States to Peru and northern Brazil.

A locally common permanent resident, known only from the western Tropical Zone. Specimens taken in July are in post-nuptial molt.

(390) **Numenius hudsonicus** Lath.

Numenius hudsonicus LATH., Ind. Orn., II, 1790, p. 712 ("Habitat in sinu Hudsonis"); TACZ., 1877, p. 330 (Santa Luzia); S. & F., 1900, p. 43 (Santa Elena, Jan.); L. & R., 1922, p. 24 (La Carolina, Oct. 18).

Vaqueria, 2 ♂ (Feb. 22), 2 ♂ (Sept. 13, 14), 1 ♀ (Feb. 14); Jambeli, 1 ♀ (Nov. 1), 1 ♂ (Nov. 2), 1 ♂, 1 ♀ (July 20); Puna Is., 1 ♀ (July 17).

RANGE.—Breeds in Arctic regions; migrates south to Chile and the mouth of the Amazon.

Although not known to nest south of the Arctic regions, this species was common singly or in small groups of three or four individuals on the shores of the lower Jambeli Gulf in mid-July, 1922. Specimens taken at this season are undergoing a complete molt. Our records indicate that the bird is present in Ecuador throughout the year.

(393) **Limosa fedoa** (Linn.)

Scolopax fedoa LINN., Syst. Nat., I, 1758, p. 146 (Hudson Bay).

Limosa fedoa, TACZ., 1877, p. 748 (Santa Luzia, Oct. 27, Nov. 23); B. & T., 1885, p. 119 (Santa Rosa).

RANGE.—Breeds from North Dakota to valley of Saskatchewan; winters southward to Peru.

(394) **Limnodromus griseus scolopaceus** (Say)

Limosa scolopacea SAY, Long's Ex. to Rocky Mts., I, 1823, p. 170 (near Council Bluffs, Iowa).

Macrorhamphus griseus, TACZ., 1877, p. 748 (Santa Luzia; Oct. 28, Dec. 2); S. & F., 1900, p. 44 (Cañar, Oct.).

Vaqueria, 2 ♀ im. (Aug. 31), 1 ♀ im. (Sept. 4), 1 ♀ (Aug. 3); Tembleque, 3 ♂, 1 ♀ (July 18).

RANGE.—Breeds in northern Alaska and east to Mackenzie; migrates south as far as Ecuador.

Like certain other Arctic-breeding shore-birds, barren individuals of the Dowitcher remain in Ecuador during the summer. Of the specimens listed above, those taken at Vaqueria on August 31 and September 4 are birds of the year, wearing, in whole or part, juvenal plumage, which have, doubtless, recently arrived from the north. The remaining specimens are all in worn adult plumage of the preceding winter and are evidently birds which neither migrated nor molted in the spring. The July 18 birds show no indication of molt, but the one taken August 3 is undergoing a complete molt through which it will acquire a plumage essentially like the one it is losing. In other words, it is passing from winter plumage to winter plumage, the breeding dress, with breeding activities, including the journey to the breeding-grounds, having been omitted.

The bill in the four males in this lot measures from 59.5 to 63.5 mm. (averaging 60.6 mm.); in the females, 66 mm. In the three female birds of the year it measures 61 to 62 mm., longer, therefore, than in average young birds from the Atlantic coast. On the basis of these measurements and the probable winter range of the form, I refer these Ecuadorean specimens to *scolopaceus*.

(395) ***Micropalama himantopus* (Bonap.)**

Tringa himantopus BONAP., Ann. Lyc. Nat. Hist. N. Y., 1826, p. 157 (Long Branch, N. J.).

Micropalama himantopus, SCL., 1860d, p. 290 (Babahoyo); S. & F., 1900, p. 44 (Vinces, Sept.).

RANGE.—Breeds in Arctic America; winters south to Chile and Uruguay.

We have no Ecuadorean specimens.

(396) ***Catoptrophorus semipalmatus inornatus* (Brewst.)**

Symphemia semipalmata inornata BREWST., Auk, IV, 1887, p. 145 (Larimer Co., Colo.).

Symphemia semipalmata, TACZ., 1877, p. 748 (Santa Luzia, Nov. 27, Dec. 13); S. & F., 1900, p. 44 (Bahia de Santa Elena, Jan.).

Tembleque, 2♂ (July 18).

RANGE.—The species, Temperate North America; the race breeds in the western United States, migrates south as far as Ecuador.

Scattered Willets were not uncommon on the shores of the lower Jambeli region in mid-July, 1922, and on the 21st of that month I saw a flock at the mouth of the Balao River which contained not less than

500 individuals. Of the two specimens taken, one is in somewhat worn winter plumage, the other, a male with enlarged testes, is in worn breeding plumage. The first-named bird, like most of the northern shore-birds we took in Ecuador in July, is undergoing a complete molt from winter plumage to winter plumage; the second is not molting. The specimen in winter plumage is probably a barren non-migrant; the one in worn breeding plumage, with the sexual organs enlarged, may be an early migrant from the north. The bill measures 58 mm. in the former, 63 mm. in the latter, and these specimens should evidently, therefore, be referred to the western rather than the eastern form of the Willet.

(397) *Totanus melanoleucus* (Gmel.)

Scolopax melanoleuca GMEL., Syst. Nat., I, 1789, p. 659 (Labrador).

Glottis melanoleuca, SCL., 1858d, p. 461 (Cuenca).

Totanus melanoleucus, S. & F., 1900, p. 44 (Laguna di Kingora, Nov.; Cañar, Oct.); L. & R., 1922, p. 24 (La Carolina, Oct.).

Gambetta melanoleuca, GOODF., 1902, p. 202 (Santa Carolina marshes near Quito).

RANGE.—Breeds in Arctic America; migrates south as far as Patagonia.

We have no Ecuadorean specimens.

(398) *Totanus flavipes* (Gmel.)

Scolopax flavipes GMEL., Syst. Nat., I, 1789, p. 659 (New York).

Gambetta flavipes, SCL., 1860d, p. 290 (Babahoyo); GOODF., 1902, p. 232 (Santa Carolina marshes near Quito).

Totanus chloropygius, TACZ., 1877 (Lechugal).

Totanus flavipes, S. & F., 1900, p. 44 (Laguna di Kingora, Nov.; Cañar, Oct.; Quito, Aug.; Vines, Sept.); L. & R., 1922, p. 24 (La Carolina, Oct., Dec., May; Tumbaco, Sept. 10; Mindo, June 20).

Coast of Manaví, 1 ♂ (Feb. 13); Chone, 1 ♀ (Dec. 21); Puna Is., 1 ♂, 1 ♀ (April 9); Santa Rosa, 1 ♂, 1 ♀ (Sept. 10).

RANGE.—Breeds in Arctic America; migrates south to Chile and Patagonia.

(399) *Tringa solitaria solitaria* Wils.

Tringa solitaria WILS., Amer. Orn., VII, 1813, p. 53, pl. 58, fig. 3 (Pennsylvania?).

Below Oyacachi, 1 ♀ (Feb. 4); 1 ♂ (Sept. 30).

RANGE.—In summer, Canada west to Keewatin and north-central states; migrates south as far as Argentina.

The wing in the specimens here listed measures 127 and 138 mm. respectively; the outer primaries are unmarked; and I refer these birds,

therefore, to true *solitaria*. Since most of our Ecuadorean specimens are apparently referable to *cinnamomea* I have placed the records of other authors under that form.

(399a) *Tringa solitaria cinnamomea* (Brewst.)

Totanus solitarius cinnamomeus BREWST., Auk, VII, 1890, p. 377 (San José del Cabo, Lower Calif.).

Helodromas solitarius, S. & F., 1900, p. 44 (Gualaquiza, April; Altiplane de Tarqui, Cuenca, Sept.); GOODF., 1902, p. 232 (Carolina marshes near Quito).

Totanus solitarius, L. & R., 1922, p. 24 (La Carolina, Jan., Feb., March; Chilco, April 15).

Guayaquil, 1♂ ad. (March 26); Loja, 1♀ im. (Oct. 14); Alamor, 1♂ ad. (Aug. 30); Cebollal, 1♂ ad. (Sept. 23); Carolina marshes, Quito, 1♀ ad. (Aug. 10).

RANGE.—Breeds in northwestern North America; winters south at least to Ecuador and, doubtless, further.

A common winter resident from the coast to the tableland, arriving from the north at least as early as August 10. Three males measure, wing 132 to 135 mm.; two females, 134 to 136 mm.; all but one have the inner web of the outer primary more or less mottled with white (a character rarely present in true *solitaria* and usually present in *cinnamomea*) and their large size, in connection with this marking, induces me to refer these birds to *cinnamomea*.

(399b) *Heteroscelus incanus* (Gmel.)

Scelopax incana GMEL., Syst. Nat., I, 1789, p. 658 (Society Group).

Santa Elena, 1♀ im. (Dec. 19); 2 (Feb. 16, 21); La Plata Is., 1 (Feb. 11).

RANGE.—Breeds in Arctic America; migrates south as far as Ecuador. This species does not appear to have been before recorded from South America.

(400) *Actitis macularia* (Linn.)

Tringa macularia LINN., Syst. Nat., I, 1766, p. 249 (Pennsylvania).

Tringoides macularius, SCL., 1858d, p. 461 (Gualaquiza); 1860c, p. 298 (Esmeraldas); Hart. 1898, p. 503 (Cachaví); S. & F., 1900, p. 44 (Valle del Río Santiago; Cuenca, Oct.; Foreste del Río Peripa, Nov.; Puntilla de Santa Elena, Jan.); GOODF., 1902, p. 232 (Santo Domingo and San Nicolas, Oct.); MEN., 1911, p. 9 (Tumbaco).

Actitis macularia, Tacz., 1877, p. 330 (Tumbez); B. & T., 1883, p. 577 (Chimbo); CHUBB, 1919, p. 266 (Riobamba); L. & R., 1922, p. 24 (La Carolina, May 14, June 19, juv., July 10, 11; San Pedro River, April 11; Machangará, Nov. 21).

Lake Colta, April 5 (Rhoads).

Esmeraldas, 3♂ juv. (Nov. 10), 1♂ juv. (Oct. 21); Santa Elena, 1♀ juv. (Dec.

15); Guayaquil, 1 ♀ juv. (Aug. 28, at beginning of postjuvenal molt); Jambeli, 2 ♂ juv. (Nov. 1, 3); Santa Rosa, 1 ♂ im. (Oct. 25); Baeza, 1 ♀ (Jan. 16); Portovelo, 1 ♀ ad. (Sept. 2, beginning postnuptial molt); Rio Pullango, 1 ♀ (Oct. 12); Guainche, 1 ♀ ad. (Aug. 27); Bestion, 1 ♀ juv. (Jan. 6); Papallacta, 1 ♂ ad. (Sept. 19); Oyacachi, 2 ♂ ad., 1 ♂ juv., 2 ♀ ad., 5 ♀ juv. (Sept. 30–Oct. 8).

RANGE.—Breeds in North America; migrates south as far as Brazil and Peru.

Summer records are doubtless of barren birds.

(405) **Tryngites subruficollis** (Vieill.)

Tringa subruficollis VIEILL., Nouv. Dict. d'Hist. Nat., XXXIV, 1819, p. 465 (Paraguay).

Tringites subruficollis, HART., 1898, p. 503 (Paramba); L. & R., 1922, p. 25 (2 ♀, July 10).

RANGE.—Breeds in Arctic America; migrates south to Argentina.

We have no Ecuadorean specimens.

(402) **Bartramia longicauda** (Bechst.)

Tringa longicauda BECHST., in Lath. Allg. Ueb. Vögel, IV, ii, 1812, p. 453 (North America).

Bartramia longicauda, L. & R., 1922, p. 24 (Chaupieruz, near La Carolina, March 20; Carapungo, Aug. 10).

Cerro Compania, 1 ♂ (Sept. 24).

RANGE.—Breeds from central eastern United States north to Alaska; migrates south as far as Argentina.

(403) **Ereunetes pusillus** (Linn.)

Tringa pusilla LINN., Syst. Nat., I, 1766, p. 252 (Santo Domingo, W. I.).

Esmeraldas, 1 (Oct. 23); Chone, 2 ♀ (Dec. 14).

RANGE.—Breeds in northern North America; winters as far south as Patagonia.

A winter visitant. The bill in these birds measures 17.5 to 19 mm., and they should presumably, therefore, be referred to this form, but the identification is far from satisfactory.

(404) **Ereunetes mauri** Cab.

Ereunetes mauri CAB., Journ. für Orn., 1856, p. 419 (Cuba).

Bahia de Caraques, 1 ♂, 2 ♀ (Feb. 24); Chone, 1 ♂ (Dec. 14); Jambeli, 3 ♂, 1 ♀ (Oct. 31).

RANGE.—Breeds in northwestern Alaska; migrates south at least to Ecuador.

In the males the bill ranges from 20 to 23 mm.; in the females, 26 to 28 mm. All are in winter plumage. Neither this species nor the preceding appears to have been before recorded from Ecuador.

(406) **Crocethia alba** (*Pallas*)

Tringa alba PALLAS, in Vroeg's Catal., 1764, p. 7 (North Sea).

Calidris arenaria, S. & F., 1900, p. 44 (Santa Elena, Jan.).

Esmeraldas, 1 ♂, 1 ♀, 1 ?; Santa Elena 1 (Feb. 15).

RANGE.—Breeds in Arctic regions; migrates as far south as Patagonia.

(407) **Pisobia minutilla** (*Vieill.*)

Tringa minutilla VIEILL., Nouv. Dict. d'Hist. Nat., XXXIV, 1819, p. 466 (Nova Scotia to Antilles); TACZ., 1877, p. 330 (Tumbez; Santa Luzia).

Limonites minutilla, S. & F., 1900, p. 44 (Santa Elena, Jan.).

Esmeraldas, 1 ♂; Lago San Pablo, 2 ♂, 1 ♀ (March 20, 21).

RANGE.—Breeds in northern North America; migrates south as far as Chile.

(408) **Pisobia maculata** (*Vieill.*)

Tringa maculata VIEILL., Nouv. Dict. d'Hist. Nat., XXXIV, 1819, p. 465 (Antilles or southern United States); GOODF., 1902, p. 232 (marshes near Quito).

Tringa pectoralis, SCL., 1858c, p. 556 (Riobamba).

Heteropygia maculata, S. & F., 1900, p. 44 (Laguna di Kingora, Nov.; Stagni, near Cañar, Oct.; Quito, Aug.); L. & R., 1922, p. 25 (La Carolina; Oct., Nov.).

Quito, 1 ♀ (Aug. 17).

RANGE.—Breeds in Arctic America; migrates as far south as Patagonia.

(409) **Pisobia bairdii** (*Coues*)

Actodromas bairdii COUES, Proc. Acad. Nat. Sci. Phila., 1861, p. 194 (Fort Resolution, Great Slave Lake, Canada).

Heteropygia bairdi, S. & F., 1900, p. 45 (Paludi, near Cañar, Oct.; Vines, Sept.); L. & R., 1922, p. 25 (La Carolina, Oct., Nov., Jan., Feb., March 1, June 7; Tumbaco, Oct. 7).

Lake Colta, April 5 (Rhoads).

Loja, 1 ♂, 1 ?; Laguna Papallacta, 1 ♀ (Oct. 22).

RANGE.—Breeds in northwestern North America; winters as far south as Patagonia and Chile.

(412) **Canutus canutus** (*Linn.*)

Tringa canutus LINN., Syst. Nat., I, 1758, p. 149 (Sweden); TACZ., 1877, p. 748 (Santa Luzia, Oct. 31).

RANGE.—Breeds in Arctic regions; in America winters as far south as southern Patagonia.

(416) *Gallinago nobilis* Scl.

Gallinago nobilis SCL., P. Z. S., 1856, p. 31 (Bogotá); B. & T., 1884, p. 313 (Yoyacsi); S. & F., 1900, p. 45 (Paramos di Cañar; El Troje; Chauipi); RHOADS, 1912, p. 143 (Paramo of Pichincha); L. & R., 1922, p. 25 (Tumbaco; Guamani; Pichincha; Cotopaxi).

Hacienda Garzon; Cumbaya (Rhoads).

El Paso, near Nabon, 1 ♂; Yanacocha, 1 ♂.

RANGE.—Chiefly Temperate Zone of Ecuador, ranging upward to the Paramo; northward in the Central and eastern Andes of Colombia.

This species appears to present no geographic variation. Ecuadorean examples agree with topotypes.

(421) *Gallinago jamesoni* (Bonap.)

Xylocota jamesoni BONAP., Compt. Rend., XLI, 1855, p. 660 (Andes of Quito, Ec.).

Gallinago jamesoni, B. & T., 1885, p. 112 (Chimborazo); S. & F., 1900, p. 45 (Paredones; Mt. Mirador); GOODF., 1902, p. 231 (Lloa, 11,500 ft.); MEN., 1911, p. 9 (Paramo of Pichincha); CHUBB, 1919, p. 268 (Guallabamba, 4,500 meters, Prov. Chimborazo; Pichincha, 14,000 ft.; Corazon, 13,000 ft.); L. & R., 1922, p. 25 (Pichincha, 11,000 to 12,000 ft.).

Mt. Pichincha, 1 ♂, 1 ♀; El Corazon, 1 ♀; Mt. Chimborazo, 4 ♂, 1 ♀; Bestion, 2 ♂, 1 ♀.

RANGE.—Paramo Zone, from northern Colombia to Bolivia; as yet unrecorded from Peru.

Ecuadorean specimens agree among themselves but differ from examples from the northern end of the Central Andes in having shorter bills, as the appended measurements show: Santa Isabel, Col.: 4 females, 90 to 93 mm. (av. 91.3 mm.); 4 males, 84 to 87.5 mm. (av. 85.5 mm.). Ecuador: 2 females, 81 to 84 mm. (av. 82.5 mm.); 6 males, 70 to 78 mm. (av. 74.6 mm.).

(425a) *Lobipes lobatus* (Linn.)

Tringa lobata LINN., Syst. Nat., I, 1758, pp. 148, 824 (Hudson Bay).

Phalaropus hyperboreus, TACZ., P. Z. S., 1877, p. 330 (Tumbez, Jan. 28).

RANGE.—Breeds in Arctic regions; in America occurs in winter off the Pacific coast from Ecuador southward.

Murphy observed this species off southern Ecuador, December 6, 1924, and it was taken by Jelski and Stolzmann at Tumbez, January 28. On the distribution of Phalaropes, see an important paper by Meinertzhagen in 'The Ibis,' 1925, pp. 325-344.

426. *Steganopus tricolor* Vieill.

Steganopus tricolor VIEILL., Nouv. Dict. d'Hist. Nat., XXXII, 1819, p. 136 (Paraguay).

Esmeraldas, 1 ♂; Guayaquil, 3 ♀ (Aug. 21).

RANGE.—Breeds in the interior of North America west to California; migrates south as far as Chile and Argentina.

These specimens are in winter plumage. The species appears not to have been before recorded from Ecuador.

FAMILY JACANIDÆ. JACANAS

(427a) *Jacana scapularis* Chapm.

Jacana scapularis CHAPM., Am. Mus. Novit., No. 31, 1922, p. 3 (Chone, Ec.).

Parra jacana, SCL., 1860d, p. 290 (Babahoyo); TACZ., 1877, p. 329 (Lambadero); B. & T., 1885, p. 112 (Yaguachi); S. & F., 1900, p. 42 (Narranjal; Vines); GOODF., 1902, p. 231 (Rio Napo).

Parra intermedia, LAW., 1869, p. 238 (Puna Is.).

Chone, 1 ♂, 2 ♀ juv., 1 ♀, 1 ?; Santa Rosa, 3 ♂ ad., 1 ♀ juv.

Specific Characters. Similar to *Jacana jacana jacana* (Linn.), but black of the anterior parts of the body less sharply defined from the back and extending backward for an inch or more on the scapulars; light areas of the outer two primaries white untinged with greenish in both adults and young; chestnut areas averaging paler; size, averaging larger. ♀: Wing, 134 mm.; tail, 40; tarsus, 55; culmen, 31. ♂: Wing, 136 mm.; tail, 40; tarsus, 55; culmen, 32.

RANGE.—Tropical Zone; western Ecuador.

An abundant species in the aquatic vegetation of fresh-water lagoons, flooded savannas, and similar situations. Large numbers may be seen from the train when passing through the marshes between Guayaquil and Yaguachi.

So far as I am aware, no race of *Jacana jacana* has been recorded from west of the Andes. In eastern Colombia we found *J. j. intermedia* only at La Morelia¹ in the Amazonian Fauna, while specimens from the Magdalena and Cauca Valleys are referable to *Jacana nigra*. The range of *scapularis* is therefore separated from that of *jacana intermedia* by the Andes—an impassable barrier—and this fact, in connection with its pronounced characters, indicates the specific distinctness of the western Ecuadorean bird. In this connection it is also pertinent to note that the white outer primaries characterize the immature as well as the adult bird.

¹ Recorded by me (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 225) as *Jacana spinosa* but following Ridgway's treatment of this group, it should evidently be known as *Jacana jacana intermedia* Scl.

FAMILY ŒDICNEMIDÆ. THICK-KNEES

(431) *Burhinus superciliaris* (Tsch.)

Œdicnemus superciliaris TSCH., Arch. für Naturg., I, 1843, p. 387 (coast of Peru); TACZ., Orn. Per., III, 1886, p. 333 (Lima to Tumbes—Stolzmann).

RANGE.—Pacific coast region from southern Peru to Ecuador.

Stolzmann's comments on this species lead one to believe that it is common in the vicinity of Tumbes, and it should therefore be included among the birds of Ecuador. The occurrence of an isolated, distinct species of this ancient type on the Pacific coast may, perhaps, be accepted as an indication of the age of the fauna of which it forms a part.

The only other South American species, *B. bistriatus vocifer*, is known from the lower Amazon Valley and northward.

ORDER GRUIFORMES

FAMILY ARAMIDÆ. LIMPKINS

(432) *Aramus scolopaceus scolopaceus* (Gmel.)

Ardea scolopacea GMEL., Syst. Nat., I, 1789, p. 647 (Cayenne).

Aramus scolopaceus, SCL., 1860d, p. 290 (Babahoyo); S. & F., 1900, p. 41 (Balzar).

Puna Is., 1 ♂, 1 ♀, 1 ?.

RANGE.—Tropical Zone throughout South America; the form from Paraguay, Uruguay, and Argentina being known as *A. s. carau* Vieill. (cf. Bangs and Penard, Bull. M. C. Z., LXII, 1918, p. 42).

A locally abundant species in western Ecuador and, doubtless, also occurring in eastern Ecuador. It was observed in numbers at the head of the Santa Rosa River, and scores may be seen from the railway train when passing through the marshes west of Yaguachi. Our specimens agree essentially with one from Santarem.

FAMILY EURYPYGIDÆ. SUN-BITTERNS

(434) *Eurypyga major major* Hartl.

Eurypyga major HARTL., Syst. Verz. Mus. Bremen, 1844, p. 108 (Colombia); GOODF., 1902, p. 230 (Santo Domingo); L. & R., 1922, p. 25 (Santo Domingo).

Eurypyga helias, SCL., 1860a, p. 73 (Pallatanga).

Rio Suno, 1 ♂; below San José, 1 ♂.

RANGE.—The species, Tropical Zone: Peru to Guatemala.

This specimen is not separable from true *major*. We have no western Ecuadorean specimens but I observed an individual on the Rio Chimbo near Puente de Chimbo.

FAMILY PSOPHIIDÆ. TRUMPETERS

(437) *Psophia napensis* Scl. & Salv.

Psophia napensis SCL. & SALV., Nomen. Av. Neotr., 1873, p. 162 (Rio Napo); S. & F., 1900, p. 42 (Valle del Rio Santiago); GOODF., 1902, p. 231 (Rio Napo); L. & R., 1922, p. 25 (Rio Curaray).

Rio Suno, 3 ♂, 1 ♀; below San José, 2 ♀.

RANGE.—Eastern Tropical Zone.

A highly characteristic Amazonian species which has never been recorded from west of the Andes.

ORDER ARDEIFORMES

FAMILY IBIDIDÆ. IBISES

(446) *Theristicus branickii* Berl. & Stolz.

Theristicus branickii BERL. & STOLZ., Ibis, 1894, p. 404 ("Peruvia alta—lacus Junin, [Jelski], et Maraynioc, Pariayacu, [Kalinowski]"); S. & F., 1900, p. 45 (Vallevicioso); GOODF., 1902, p. 226 (Vallevicioso); L. & R., 1922, p. 25 (Lake Mica).

Antisana, 3 ♂, 1 ♀.

RANGE.—Paramo Zone, Ecuador to Bolivia.

Evidently a representative of *T. melanopsis* of the South Temperate Zone. Our specimens have the crown and nape much paler than in two topotypes from Lake Junin, but the differences appear to be seasonal.

(448) **Harpiprion cayennensis** (Gmel.)

Tantalus cayennensis GMEL., Syst. Nat., I, 1789, p. 652 ("Habitat in Cayenna").

Harpiprion cayennensis, SCL., 1858a, p. 77 (Napo).

RANGE.—Tropical Zone; Amazonia.

We have no Ecuadorean specimens.

(455) **Guara alba** (Linn.)

Scolopax alba LINN., Syst. Nat., I, 1758, p. 145 (Carolina).

Ibis alba, TACZ., 1877, p. 746 (Santa Luzia).

Eudocimus alba, HART., 1902, p. 605 (Vaqueria).

Chone, 1 ♂ ?.

RANGE.—Throughout the Tropical Zone northward to the southern United States.

Doubtless occurs in the Amazonian Fauna as well as in the Pacific coast region. Observed at the head of the Santa Rosa River.

FAMILY PLATALEIDÆ. SPOONBILLS

(457) **Ajaia ajaja** (Linn.)

Platalea ajaja LINN., Syst. Nat., I, 1758, p. 140 ("America australi"); TACZ., P. Z. S., 1877, p. 746 (Santa Luzia, mouth of Tumbez River).

RANGE.—Argentina to southern United States.

Doubtless locally common at favorable localities throughout tropical Ecuador, but Stolzmann's record from the right bank of the Tumbez appears to be the only definite one.

FAMILY CICONIIDÆ. STORKS

(458) **Mycteria americana** Linn.

Mycteria americana LINN., Syst. Nat., I, 1758, p. 140 (Brazil).

Tantalus loculator, SCL., 1860d, p. 290 (Babahoyo); L. & R., 1922, p. 25 (La Carolina; rare).

RANGE.—Argentina to southern United States; in Ecuador recorded only from the western Tropical Zone.

Small flocks of this species were observed at the head of the Santa Rosa River but no specimens were secured.

FAMILY ARDEIDÆ. HERONS, BOATBILLS, BITTERNS

(461) *Ardea cocoi* Linn.

Ardea cocoi LINN., Syst. Nat., I, 1766, p. 237 (Cayenne); L. & R., 1922, p. 26 (Mindo).

RANGE.—Patagonia to the Caribbean.

Common on the upper Santa Rosa but no specimens were secured.

(463) *Casmerodias egretta* (Gmel.)

Ardea egretta GMEL., Syst. Nat., I, 1789, p. 629 (Cayenne).

Egretta leuce, SCL., 1860d, p. 290 (Babahoyo).

Casmerodias egretta, CHUBB, 1919, p. 272 (Lago Colta); L. & R., 1922, p. 26 (La Carolina, June 20).

RANGE.—South Temperate to North Temperate Zone.

In Ecuador this species ranges from the lowlands to the tableland, but it is probable that it is confined to the Tropical Zone when breeding, and that the Temperate Zone records are indications of the post-breeding wanderings which, in North America, bring the species from the southern to the northern United States after its nesting season is over.

(464) *Egretta candidissima* (Gmel.)

Ardea candidissima GMEL., Syst. Nat., I, 1788, p. 633 (Cayenne); TACZ., 1877, p. 745 (Santa Luzia).

Jambeli, 1♂ ad.; head of Santa Rosa River (observed).

RANGE.—South Temperate to North Temperate Zone; not previously recorded from Ecuador.

The specimen recorded was taken November 4, is in full breeding plumage, and has enlarged testes. The fact that there is but one previous record of the occurrence of this species in Ecuador indicates how unbalanced and incomplete has been our knowledge of the avifauna of that country.

(465) *Florida cærulea* (Linn.)

Ardea cærulea LINN., Syst. Nat., I, 1758, p. 143 (Carolina).

Florida cærulea, TACZ., 1877, p. 745 (Santa Luzia); S. & F., 1900, p. 46 (Vinces; Rio Peripa; Rio Daule); HART., 1902, p. 605 (Vaqueria); L. & R., 1922, p. 26 (La Carolina, Nov., Dec., March).

Esmeraldas, 1 ♂; Chone, 1 ♂, 1 ♀; Puna Is., 1 im.

RANGE.—Brazil to the southern United States.

I follow Mr. Todd ('Birds of Santa Marta Region,' p. 134) in recognizing but one form of this species.

(466) *Hydranassa tricolor ruficollis* (Gosse)

Egretta ruficollis GOSSE, Birds of Jamaica, 1847, p. 338 (Jamaica).

Hydranassa tricolor ruficollis, HART., 1902, p. 605 (Vaqueria).

Chone, 1 ♂; Jambeli, 1 ♂ ad.

RANGE.—Tropical Zone north to southern United States; in Ecuador known only from the western Tropical Zone.

Lacking material for comparison, I follow Hellmayr¹ in referring western Ecuadorean specimens to *ruficollis*. Common in the lower Jambeli region and, doubtless, elsewhere in tropical Ecuador. The specimen recorded from Jambeli was taken November 2, is in full breeding plumage, and has the testes enlarged.

(468) *Agamia agami* (Gmel.)

Ardea agami GMEL., Syst. Nat., I, 1788, p. 629 (Cayenne).

Agamia agami, HART., 1902, p. 605 (Pambilar).

RANGE.—Brazil to Mexico.

We have no Ecuadorean specimens.

(469) *Nycticorax nycticorax nævius* (Bodd.)

Ardea nævia BODD., Tabl. Pl. Enl., 1783, p. 56 (Cayenne).

Nycticorax gardeni, SCL., 1858a, p. 77 (Napo); Tacz., 1877, p. 329 (Lechugal).

Nycticorax tayazu-quira, S. & F., 1900, p. 46 (Laguna de Yaguarcocha); L. & R., 1922, p. 26 (La Carolina; Chilco).

Chone, 1 ♀ ad., 1 ♂ juv.; San Pablo, Otavalo, 4 ♂ ad., 2 ♀ ad.

RANGE.—The species, Western Hemisphere; in Ecuador from the Tropical to the Temperate Zone.

Adults agree with average North American birds. As stated elsewhere,² I have seen specimens from northern Argentina which can be matched by others from the United States, and one from Panama is nearly as dark as the Chilean form.

¹ Nov. Zool., XIII, 1906, p. 50.

² Bull. No. 117, U. S. Nat. Mus., 1921, p. 53.

(472) *Nyctanassa violacea cayennensis* (Gmel.)

Ardea cayennensis GMEL., Syst. Nat., I, 1788, p. 626 (Cayenne).

Nycticorax violacea, SCL., 1860d, p. 290 (Babahoyo); Tacz., 1877, p. 746 (Santa Luzia).

Nyctanassa violacea, HART., 1902, p. 605 (Vaqueria).

Jambeli, ♂ ad.

RANGE.—The species, tropical America generally from Brazil to the southern United States.

This specimen agrees with the average North American bird in color but is smaller (wing, 264 mm.) and, with other South American specimens, should, doubtless, be referred to the small form which Bangs and Penard have recently resurrected (Bull. M. C. Z., LXII, 1918, p. 31).

(473) *Cochlearius cochlearius* (Linn.)

Cancroma cochlearia LINN., Syst. Nat., I, 1766, p. 233 (Guiana); HART., 1902, p. 605 (Salidera); SHARPE, Cat. Bds. B. M., XXVI, 1898, p. 165 (Sarayacu).

RANGE.—Southern Brazil to the Caribbean; western as well as eastern Ecuador.

We have no Ecuadorean specimens.

(473a) *Cochlearius zeledoni* (Ridgw.)

Cancroma zeledoni RIDGW., Proc. U. S. N. M., VIII, 1885, p. 93 (Mazatlan, Mex.); L. & R., 1922, p. 26 (Rio Blanco, below Mindo, 2 specimens, very rare).

RANGE.—Tropical Zone; western Ecuador to Mexico.

We have no Ecuadorean specimens. It should be noted that both *C. zeledoni* and *C. cochlearius* are recorded from western Ecuador.

(476) *Butorides striata* (Linn.)

Ardea striata LINN., Syst. Nat., I, 1766, p. 238 (Surinam).

Butorides virescens, TACZ., 1877, p. 746 (Santa Luzia).

Butorides striata HART., 1898, p. 502 (Cachaví); S. & F., 1900, p. 47 (Rio Daule; Rio Peripa; Vines); L. & R., 1922, p. 26 (La Carolina; Yaguarocha).

Butorides cyanurus, GOODF., 1902, p. 226 (Santo Domingo).

Bucay (Rhoads).

Esmeraldas, 1 ♀, 1; Rio de Oro, 1 ♂, 1 ♀; Chone, 1 ♂; Bucay, 1 ♂; Santa Rosa, 1 ♀; Puna Is., 1 ♂; Zamora, 1 ♀; Lago San Pablo, 1 ♂.

RANGE.—Tropical America north to Panama; known from both eastern and western Ecuador and ranging upward to the tableland.

Our specimens agree with others from eastern Venezuela and Trinidad.

(479) **Tigrisoma lineatum** (Bodd.)

Ardea lineata Bodd., Tabl. Pl. Enl., 1783, p. 52 (Cayenne).

Tigrisoma tigrinum, SCL., 1858b, p. 461 (Gualaquiza); 1860d, p. 290 (Babahoyo).

Tigrisoma brasiliense, SCL., 1860a, p. 72 (Pallatanga); HART., 1898, p. 502 (Paramba).

Tigrisoma marmoratum, S. & F., 1900, p. 47 (Vinces; Rio Peripa).

Tigrisoma lineata, HART., 1902, p. 605 (Paramba); MEN., 1911, p. 10 (Santo Domingo).

Rio Suno, 1 ♀ ad.

RANGE.—Amazonia to Panama; eastern and western Ecuador.

This appears to be the northern form of *T. marmoratum*.

(483) **Tigrisoma salmoni** Scl. & Salv.

Tigrisoma salmoni SCL. & SALV., P. Z. S., 1875, p. 38 (lower Cauca Valley, Col.); S. & F., 1900, p. 47 (Gualaquiza; Valle del Rio Santiago; Valle del Zamora); B. & T., 1883, p. 577 (Chimbo); L. & R., 1922, p. 26 (Guala; Mindo; Rio San Pedro; below Zambiza; Pichincha, 1 "caught alive very tired and unable to fly").

Mindo, 1 ♂ ad.; Chimbo, 1 ♂ im.; Las Piñas, 1 ♂ im.; Guainche, 1 ♂ ad.; below San José, 1 ♂; lower Sumaco, 1 ♂; Palmira east of Baños, 1 ♂ im.

RANGE.—Tropical Zone of western South America. Known from both eastern and western Ecuador.

The Guainche and Mindo specimens are fully adult and have the unbarred flanks said to characterize this species. The Las Piñas bird is in the broadly black and ochraceous barred state of what is evidently the plumage of the first year; while the Chimbo specimen is in what appears to be the succeeding stage of plumage in which the ochraceous bars are much narrower, the intervening areas greener. The exposed culmen in the youngest bird measures 72 mm.; in the two others, 88 mm.

Mr. W. DeW. Miller calls my attention to the stouter, more *Nycticorax*-like bill of this species as compared with that of *T. marmoratum*, a character which apparently distinguishes the two species at all ages. He has also discovered that interscapular powder-down patches are present in *salmoni* and absent in *lineatum*.¹

(489) **Botaurus pinnatus** (Wagl.)

Ardea pinnata WAGL., Isis, 1829, p. 663 ("Habitat in Brasiliæ provincia Bahía").

Botaurus pinnatus, S. & F., 1900, p. 48 (Vinces).

RANGE.—Tropical Zone; Brazil to Colombia.

We have no Ecuadorean specimens.

¹ Bull. Amer. Mus. Nat. Hist., L, 1924, p. 328.

ORDER ANHIMIFORMES

FAMILY ANHIMIDÆ. SCREAMERS

(490) *Anhima cornuta* (Linn.)

Palamedea cornuta LINN., Syst. Nat., I, 1766, p. 232 ("Brasilia"); SALVAD., Cat. Bds. B. M., XXVII, 1895, p. 4 (Balzar "Mts."—Illingworth).

RANGE.—Greater part of Tropical Zone in South America.

Doubtless occurs also in eastern Ecuador.

ORDER PHÆNICOPTERIFORMES

FAMILY PHÆNICOPTERIDÆ. FLAMINGOS

(494) *Phœnicopterus chilensis* Mol.

Phœnicopterus chilensis MOL., Sagg. Stor. Nat. Chile, 1776, p. 242 (Chile).

*Phœnicopterus ignipalliatu*s, TACZ., 1877, p. 330 (delta at Tumbez).

RANGE.—South Temperate and Andean Temperate Zones of Peru; coast and tableland.

No Flamingo has as yet been recorded from Ecuador, but the occurrence of this species at Tumbez, near the Ecuadorean boundary, should be noted here for this is the most northern point at which the species has been found.

ORDER ANSERIFORMES

FAMILY ANATIDÆ. SWANS, DUCKS, GEESE

(499) *Cairina moschata* (Linn.)

Anas moschata LINN., Syst. Nat., I, 1758, p. 124 (Brazil).

Cairina moschata, S. & F., 1900, p. 50 (Rio Bomboiza).

RANGE.—Tropical Zone generally, north to Mexico; occurs in both eastern and western Ecuador.

Observed in the Yaguachi marshes and at the head of the Santa Rosa, but no specimens were taken.

(508) *Dendrocygna bicolor* (Vieill.)

Anas bicolor VIEILL., Nouv. Dict. d'Hist. Nat., V, 1816, p. 136 (Paraguay).

Dendrocygna fulva, S. & F., 1900, p. 50 (Vinces).

Chone, 2 ♂.

RANGE.—Argentina to Colombia, eastern and western Ecuador; Mexico to California; southern Africa, Madagascar, India, and Burmah.

(509) *Dendrocygna discolor* Scl. & Salv.

Dendrocygna discolor SCL. & SALV., Nomen. Av. Neotr., 1873, p. 161 (Maroni River, Surinam); S. & F., 1900, p. 50 (Balzar); L. & R., 1922, p. 27 (La Carolina).

Chone, 2 ♂, 1 ♀; Santa Rosa, 2 ♀; common in large flocks in July.

RANGE.—Tropical Zone: Brazil to Colombia; recorded only from western Ecuador, but doubtless also occurring in the Amazonian Fauna.

(518) *Nettion andium* (Scl. & Salv.)

Querquedula andium SCL. & SALV., Nomen. Av. Neotr., 1873, p. 162 (near Rionbamba, Ec.).

Nettion andium, S. & F., 1900, p. 50 (Cañar; Lago de Culebrillas; Chaupi; Vallevicioso).

Nettion andium, CHUBB, 1919, p. 275 (Sinche [= Sinchic ?]); L. & R., 1922, p. 27 (Pedregal; Lake Mica).

Papallacta, 1 ♀; Antisana, 3 ♂, 2 ♀, 2 pull. (Nov. 19); Urbina, 1 ♂; Antisanilla, 1 ♂; Bestion, 1 ♂, 2 ♀.

RANGE.—Paramo Zone; Ecuador north to Venezuela.

A series from the Mérida region agrees with Ecuadorean birds.

(521) *Dafila spinicauda* (Vieill.)

Anas spinicauda VIEILL., Nouv. Dict. d'Hist. Nat., V, 1816, p. 135 (Buenos Ayres).

Dafila spinicauda, S. & F., 1900, p. 50 (Stagni, near Cañar; Altiplane of Tarqui, Cuenca, 2,600 m.); L. & R., 1922, p. 27 (La Carolina; Lake Mica; Pedregal).

Lago San Pablo, 1 ♂, testes enlarged (March 22).

RANGE.—Straits of Magellan north in the Andean Temperate Zone to northern Ecuador.

(525) *Querquedula discors* (Linn.)

Anas discors LINN., Syst. Nat., I, 1766, p. 205 (Virginia or Carolina).

Cyanoptera discors, SCL., 1860b, p. 83 (Rio Machangara below Quito, May).

Querquedula discors, S. & F., 1900, p. 50 (Laguna di Kingora, July); CHUBB,

p. 275 (Lago Colta); L. & R., 1922, p. 27 (La Carolina, Jan., Feb., March, April, Oct., Nov.).

Esmeraldas, 3 ♂; Chone, 2 ♂, 1 ♀; Lago San Pablo, 1 ♂ (March 23).

RANGE.—Breeds in North Temperate Zone; winters as far south as Brazil and Chile.

Winters in Ecuador from the Tropical to the Temperate Zone.

(526) *Querquedula cyanoptera* (Vieill.)

Anas cyanoptera VIEILL., NOUV. Dict. d'Hist. Nat., V, 1816, p. 104 (Rio de la Plata and Buenos Aires).

Querquedula cyanoptera, TACZ., 1877, p. 746 (Santa Luzia); GOODF., 1902, p. 227 (Santa Carolina marshes north of Quito; lakes near Cotopaxi); L. & R., 1922, p. 27 (La Carolina).

Carolina, Quito, 1 ♂ ad. (April 10).

RANGE.—Argentina to California.

Ecuadorean records are all from the tableland. The one specimen examined is typical.

(533) *Marila erythrophthalma* (Wied)

Anas erythrophthalma WIED, Beitr. IV, 1832, p. 929 (Villa de Belmonte, south-eastern Brazil).

Fuligula nationi SCL. & SALV., P. Z. S., 1877, p. 522 (Lima, Peru).

Nyroca nationi, L. & R., 1922, p. 27 (La Carolina, 2 ♂, Feb. 15, 1915).

RANGE.—Known in South America from near Lima, Peru, Ecuador (as above), Cauca Valley of Colombia, Lake Maracaibo, Venezuela,¹ and Brazil. Its occurrence on the tableland of Ecuador is doubtless casual, but it probably occurs regularly, if locally, in the Tropical Zone of western Ecuador.

The discovery of this species in Maracaibo, east of the Andes, convinces me that but one form of it exists in South America.

(533a) *Marila affinis* (Eyton)

Fuligula affinis EYTON, Monog. Anat., 1838, p. 157 (North America).

Nyroca affinis, L. & R., 1922, p. 27 (La Carolina, May 12).

RANGE.—Breeds in northern North America; south in winter to northern South America.

We have no Ecuadorean specimens.

¹ Osgood and Conover, Field Mus. Pub., No. 210, 1922, p. 46.

(535) *Nomonyx dominicus* (Linn.)

Anas dominica LINN., Syst. Nat., I, 1766, p. 201 (Santo Domingo).

Nomonyx dominicus, S. & F., 1900, p. 50 (Rio Peripa); L. & R., 1922, p. 28 (La Carolina).

Chone, 4♂, 1♀.

RANGE.—Tropical Zone; recorded only from western Ecuador.

Immature- or winter-plumaged birds from Ecuador and the Cauca Valley of Colombia appear to average darker than those from Cuba, but I can detect no constant difference between them.

(538) *Erismatura ferruginea* Eyton

Erismatura ferruginea EYTON, Monog. Anat., 1838, p. 170 (Chile).

Erismatura æquatorialis SALVAD., Cat. Bds. B. M., XXVII, 1895, p. 450 (Antisana; Sical, Ec.); HART., 1898, p. 502 (Lake Yaguarcocha); S. & F., 1900, p. 50 (Lago de Páramos near Cañar; Laguna di Kingora); L. & R., 1922, p. 27 (Cotopaxi, nearly 14,000 ft., ad. and chick, May 3).

Lago San Pablo, Otavalo, 1♂.

RANGE.—Paramo and Temperate Zones; Bolivia to Ecuador.

Comparison of our single specimen of this species with nine males from Lake Titicaca leads me to believe that *Erismatura æquatorialis* Salvad., based on a male from Antisana and a female from Sical, Ecuador, is not valid. The characters attributed to this proposed species are: smaller size, paler general coloration, and white, instead of chestnut, lower tail-coverts. The first character apparently does not exist (our male measures, wing, 151 mm.; three from Titicaca, 152 to 153 mm.); the second, is due to wear; the third, to age. Our specimen is much worn but can be almost exactly matched in color by several Titicacan specimens. Not fully adult birds with a silvery gray abdomen have the lower tail-coverts largely white, but in mature birds, with the chestnut-rufous extending from breast to vent, this color covers also the lower tail-coverts. I have not seen an Ecuadorean female of this species, but, according to Salvadori, it is similar to that of *ferruginea*.

(546) *Merganetta colombiana* Des Murs

Merganetta colombiana DES MURS, Rev. Zoöl., 1845, p. 179 (Colombia); S. & F., 1900, p. 51 (Vallevicioso); GOODF., 1902, p. 227 (lake above Papallacta, 12,000 ft.); CHUBB, 1919, p. 277 (Papallacta Lake, 12,000 ft.); L. & R., 1922, p. 28 (San Pedro near Tumbaco; Cumbaya; Rio Pita; Rio Guailabamba, 1,000 ft.).

Antisana, 1 ♀; Valle de Cumbaya, 1 ♂; upper Rio Pita, 2 ♂, 1 ♀; San Pedro above Tumbaco, 1 ♂, 1 ♀; Rio Quijos, 1 ♀ pull. (April 28); Oyacachi, 2 ♂; lower Sumaco, 1 ♂.

RANGE.—Ecuador to Venezuela.

In Colombia we found this Duck in the streams of the Subtropical Zone; in the Urubamba region of Peru its representative, *leucogenys*, inhabits the Temperate Zone; while, in Ecuador, Goodfellow records *colombiana* from as high as 12,000 feet, and Lönnberg and Rendahl from as low as 1,000 feet. Doubtless, the bird's zonal range is governed by local conditions (primarily food and temperature of the water) which are not revealed by a mere statement of the altitude at which it occurs.

ORDER PELECANIFORMES

FAMILY PHALACROCORACIDÆ. CORMORANTS, SHAGS

(549) *Phalacrocorax vigua vigua* (Vieill.)

Hydrocorax vigua VIEILL., Nouv. Dict. d'Hist. Nat., VIII, 1817, p. 90 (Paraguay).

Phalacrocorax vigua, S. & F., 1900, p. 48 (Rio Zamora; Rio Peripa).

Phalacrocorax brasiliensis, Tacz., 1877, p. 745 (Tumbez); GOODF., 1902, p. 226 (upper Napo).

Carbo vigua, L. & R., 1922, p. 29 (Yaguarcocha; San Pedro; Chillo; Santo Domingo).

RANGE.—Argentina to Mexico.

Abundant about Puna Islands, February 24, 1925 (Murphy). We have no Ecuadorean specimens.

(550) *Phalacrocorax bougainvillii* (Less.)

Carbo bougainvillii LESS., Voy. Thétis et de L'Esperance, II, 1837, p. 331 (Chile).

RANGE.—Pacific coast from Chile north to northern Peru; casually to southern Ecuador.

Dr. Murphy observed two individuals of this species in the Gulf of Guayaquil, January 28; three at Santa Clara Island, February 26, and two small flocks at Guayaquil, February 28, 1925. He was told that, at times of the *peste* along the Peruvian coast, sick Cormorants of this species appear in numbers on the Gulf of Guayaquil and up the Guayas.

FAMILY ANHINGIDÆ. DARTERS

(554) *Anhinga anhinga* (Linn.)

Plotus anhinga LINN., Syst. Nat., I, 1766, p. 218 (Brazil); S. & F., 1900, p. 48 (Rio Peripa); L. & R., 1922, p. 29 (La Carolina, 1, May 15, 1900, "the only one ever seen there"; Rio Curaray).

Chone, 2♂; Rio Suno, 1♂.

RANGE.—Tropical Zone, north to Gulf States.

FAMILY SULIDÆ. GANNETS

(555) *Sula dactylatra* Less.

Sula dactylatra LESS., Voy. Coq., Zoöl., II, 1837, p. 494 (Ascencion Is.).

Sula cyanops, S. & F., 1900, p. 49 (Bahia di Santa Elena).

La Plata Is., 2♂, 2♀ (Feb. 18, 1925).

RANGE.—Tropical seas generally.

Observed and collected south to Talara, Peru, in January, 1925. Incubating eggs on La Plata Island in the middle of February, 1925 (Murphy).

(557) *Sula variegata* (Tsch.)

Dysporus variegatus TSCH., Faun. Per., Aves, 1845, p. 313 (Peru).

RANGE.—Coasts of Peru and Chile, nesting northward to Talara.

"One observed near southern end of Puna Is., Gulf of Guayaquil, Feb. 26, 1925. The northern end of the range of this species is near Cape Blanco, but stragglers occasionally enter the Gulf of Guayaquil" (Murphy).

(558) *Sula nebouxi* Milne-Edwards

Sula nebouxi MILNE-EDWARDS, Ann. Sci. Nat., XIII, 1882, p. 37, pl. xiv (Pacific coast of America).

Pelado Is., Santa Elena Bay, 1♂; Santa Clara Is., 1♂; Jambeli Is., 2♂, 1♀.

RANGE.—Pacific coast from the Gulf of California to Lobos Is., Peru; casually to Ancon.

An abundant resident of the islands off the coast of Ecuador, nesting by thousands on Santa Clara Island. Murphy states that it breeds on La Plata.

(559a) ***Sula etesiaca* Thayer & Bangs**

Sula etesiaca THAYER & BANGS, Bull. M. C. Z., XLVI, 1905, p. 92 (Gorgona Is., Col.).

RANGE.—Coast of northwestern South America; representing *Sula leucogastra* of tropical seas generally.

A single individual of this species was observed by Dr. Murphy off the coast of northern Ecuador, March 13, 1925.

FAMILY FREGATIDÆ. MAN-O'-WAR BIRDS

(560) ***Fregata magnificens rothschildi* Math.**

Fregata minor rothschildi MATH., Bds. Austr., IV, 1915, p. 280 (Aruba, W. I.).

Fregata aquila, S. & F., 1900, p. 49 (Rio Daule; Bahia de Santa Elena).

Santa Elena, 1 ♂, 1 ♀; Jambeli, 4 ♂, 1 ♀; Santa Clara Is., 2 ♀.

RANGE.—Florida to Brazil and northern Peru (see a review of the genus by P. R. Lowe, Nov. Zoöl., XXXI, 1924, pp. 279–313).

Abundant on the coast of Ecuador and particularly so in the Gulf of Guayaquil. They nest on various islands off the coast, including Santa Clara Island, doubtless their most southern breeding-place on the Pacific coast.

FAMILY PHAËTHONTIDÆ. TROPIC BIRDS

(561) ***Phaëthon æthereus* Linn.**

Phaëthon æthereus LINN., Syst. Nat. I, 1758, p. 134 (Ascencion Is.).

Entrance to Gulf of Guayaquil, 1 ♂ (Jan. 16, 1925).

RANGE.—Coasts of tropical America.

Dr. Murphy reports this species as breeding on La Plata Island.

FAMILY PELECANIDÆ. PELICANS

(563) ***Pelecanus occidentalis* Linn.**

Pelecanus occidentalis LINN., Syst. Nat., I, 1766, p. 215 (West Indies).

Pelecanus californicus, S. & F., 1900, p. 49 (Bahia di Santa Elena).

Santa Elena, 2 ♂ ad.; 1 ♂ im., 1 ♀; Jambeli, 2 ♂ ad.; 2 ♂ im.; 1 ♀ im.

RANGE.—Coast of South Carolina south to Brazil and northern Peru.

Abundant on the coast and bays of Ecuador, nesting in large numbers on Santa Clara Island which is their known southern breeding limit on

the Pacific coast, but occurring as far south as Talara, Peru, whence we have specimens. This point is within a few miles of the northern limit of the range of *Pelecanus thagus* at Point Pariñas.

ORDER CATHARTIFORMES

FAMILY CATHARTIDÆ. CONDORS, VULTURES

(565) *Vultur gryphus* (Linn.)

Vultur gryphus LINN., Syst. Nat., I, 1758, p. 86 (Chile); CHUBB, 1919, p. 278 (Sinche, Guaranda, 400 meters [=Sinchic, 4,000 meters ?]); L. & R., 1922, p. 29 (Pichincha, 1,000 ft. [=10,000 ft. ?], Zambiza).

Sarcorhamphus gryphus, ORTON, Ann. N. H., VIII, 1871, p. 185; S. & F., 1900, p. 26 (Cafiar); GOODF., 1902, p. 223 (Pichincha, 15,000 ft.; Cotopaxi); MEN., 1911, p. 10 (El Pelado).

Sarcorhamphus æquatorialis SHARPE, Cat. Bds. B. M., I, 1874, p. 21 (Ecuador); RIDGW., Auk, II, 1885, p. 169 (Crit.); RHOADS, 1912, p. 149 (Paramo of Pichincha).

Mt. Pichincha, 2♂, 1♀; Chimbbrazo (14,000 ft.), 2 (observed).

RANGE.—South Temperate Zone north in the Paramo Zone to Colombia and rarely the Mérida region of Venezuela.

Although the Condor, like several other species of the Paramo and Temperate Zones which are influenced by the Humboldt Current, descends to sea-level in Peru, in northern Ecuador it is practically unknown below 10,000 feet. I have no information in regard to the existence of an assumed second species of Condor in Ecuador. Our specimens are adult and agree in color as well as in size with an example from the Uspallata Pass, Argentina. The measurements of two fully adult males are appended.

	Wing mm.	Tail mm.	Tarsus mm.
Mt. Pichincha, Ec. ♂	835	369	145
Uspallata, Arg. ♂	835	387	145

(566) *Sarcorhamphus papa* (Linn.)

Vultur papa LINN., Syst. Nat., I, 1758, p. 86 ("India occidentali" = Brazil).

Gypagüs papa, S. & F., 1900, p. 27 (Gualaquiza; Rio Peripa).

Esmeraldas, 1?; Chongon Hills, 1; Puna Is. (observed).

RANGE.—Tropical America.

Common in the Tropical Zone of western and, doubtless, also of eastern Ecuador.

(567) *Coragyps*¹ *urubu foetens* (Wied)

C[athartes] foetens WIED, Beitr. zur Naturg., III, 1830, p. 58 (Brazil).

Cathartes atrata, SCL., 1860c, p. 96 (Perucho); 1860d, p. 287 (Babahoyo).

Coragyps atratus foetens, L. & R., 1922, p. 29 (Machangará River; Quito; Cumbaya).

"Quito," 2 ♂.

RANGE.—The species, Chile to southern United States.

It is doubtful if this species often reaches the tableland. Measurements of the two birds above recorded, with others from Colombia and Chile and North America, are presented below, to illustrate the slight difference in size between North American and South American specimens:

		Wing mm.	Tail mm.	Tarsus mm.	Bill from posterior margin of nostril mm.
Florida	3 ♂	425-444	191.5-218.5	78.5-83	46.5-52
South America	5 ♂	400-419.5	174 -183	70 -76.5	43 -50
Florida	3 ♀	406-432	188 -191.5	77 -79	47.5-52
South America	3 ♀	414	181.5-198	71.5-73	43 -49

(568) *Cathartes aura ruficollis* Spix

Cathartes ruficollis SPIX, Av. Bras., I, 1824, p. 2 (Bahia).

Cathartes aura meridionalis SWANN, Syn. Acc., 2d ed., 1921, p. 3 (Colombia).

Cathartes aura, SCL., 1860c, p. 96 (Puellaró); 1860d, p. 287 (Babahoyo).

Cathartes barroviana, S. & F., 1900, p. 27 (Gualaquiza; Rio Peripa).

Cathartes perniger, L. & R., 1922, p. 29 (Cumbaya).

Jambeli Is., 1 ♂, 1 ♀ (wing); Las Piñas, 1 ♂; Cumbaya, 1 ♂; Ambato, 1.

RANGE.—The species, Patagonia to Canada; the race, South America, except South Temperate Zone, north on the Pacific coast to western Ecuador.

The extremes of variation in *Cathartes aura* in South America are represented in our collection by a series of 8 specimens from the Orinoco, and of 8 specimens from the Falkland Islands. While the latter birds average larger, the differences in size are overlapped by individual variation, and size, therefore, is not a diagnostic character. In color the Falkland Island birds average greener, the Orinocan birds bluer above, but this difference also is swamped by individual variation and cannot, therefore, be depended upon for purposes of determination. In the color of the wings there is, however, an apparently constant difference between the birds of the two series, the Falkland Island birds having the exposed portion of the outer web of the secondaries a silvery gray,

¹*Coragyps* replaces *Catharista* = *Cathartes*, Chubb, Bds. Brit. Guiana, I, 1916, p. 208.

whereas, in the Orinocan birds the secondaries are margined with dark brown. A similar difference also appears on the outer margins of most of the greater coverts. The lesser coverts of the Falkland Island birds are widely margined with grayish brown, whereas in the Orinocan birds the margin is much darker and consequently less conspicuous. Furthermore, the inner or unexposed portion of the feathers in the Orinocan bird is strongly purple, while in the Falkland Island birds it is greenish blue. Specimens from Paraguay and Matto Grosso agree closely with the birds from the Orinoco, and to this bird the name *ruficollis* Spix is commonly and evidently correctly applied. This form ranges throughout the interior of South America from at least Paraguay northward, and to it I should also refer specimens from Ecuador east of the outer coastal region and from the Department of Antioquia in Colombia.

The range of the Falkland Island form, or what may be termed the gray-winged form, as shown by specimens in our collections, is apparently the South Temperate Zone north, east of the Andes, at least to the vicinity of Mendoza and Argentina. West of the Andes, it includes all of Chile, the coast of Peru and of Ecuador at least as far north as La Plata Island. We have also a specimen from Incachaca (7,700 ft.), Department of Cochabamba, Bolivia, which indicates that this gray-winged form may occupy the tableland and adjoining slopes of Bolivia and, possibly, also Peru. While the characters of this form are most highly developed in the Falkland Island series, specimens from both the interior and coast of Chile, are not separable from it; a specimen from Chincha Island, off the coast of Peru, is almost identical with examples from the Falkland Islands, and specimens from Talara, Peru, and La Plata Island are also obviously referable to this form. On the other hand, specimens from Jambeli Island and Las Piñas (3,600 ft.), in southwestern Ecuador, more nearly resemble *ruficollis*, and it is evident that in this region the ranges of the two forms closely approach, that of the South Temperate race lying west of the line of regular annual rainfall. For this gray-winged bird the name *jota* Molina is available.

It is probable that the yellow-headed buzzard (*Cathartes urubitinga* Pelz.) occurs in eastern Ecuador, but no specimens have been recorded from that region.

(568a) *Cathartes aura jota* (Mol.)

Vultur jota MOL., Sagg. Stor. Nat. Chile, 1782, p. 265 (Chile).

La Plata Is., 1 ♀.

RANGE.—South Temperate Zone; north on the Pacific coast to Ecuador and in the Andes probably to the tableland of Peru.

I append a list of our specimens of this race, and my comments on its characters are presented under the preceding form. A large series is required to determine the status of this species on the coast of Ecuador, but the La Plata specimen is certainly referable to *jota* while an example from Jambeli is not separable from *ruficollis*. The former locality, while farther north, is exposed to the influence of the sea and probably has a lower temperature than Jambeli which lies within the mouth of the Gulf of Guayaquil. The climatic difference between the two localities is further indicated by the fact that, as Murphy¹ has shown, La Plata lies beyond, Jambeli within the area of annual rains.

Name	Place		Wing mm.	Tail mm.
C. a. jota	Falkland Is.	4 ♂	490-507	263-270
C. a. jota	Corral, Chile	♂	505	265
C. a. jota	Temuco, Chile	♂	504	265
C. a. jota	Tunuyan, Arg.	♂	510	275
C. a. jota	Talara, Peru	♂	449	228
C. a. ruficollis	Caicara, Ven.	3 ♂	455-484	213-252
C. a. ruficollis	Matto Grosso, Brazil	2 ♂	500-502	265
C. a. ruficollis	Ft. Wheeler, Par.	♂	504	230
C. a. ruficollis	Jambeli Is., Ec.	♂	500	260
C. a. jota	Falkland Is.	4 ♀	480-515	272-282
C. a. jota	Chincha Is., Peru	♀	472	234
C. a. jota	La Plata Is., Ec.	♀	475	240
C. a. jota	Incachaca (7,700 ft.), Bol.	♀	502	288
C. a. ruficollis	Caicara, Ven.	5 ♀	468-510	258-265
C. a. ruficollis	Puerto Valdivia, Col.	♀	505	265

ORDER ACCIPITRIFORMES

FAMILY FALCONIDÆ. CARACARAS, HAWKS, FALCONS, OSPREYS, ETC.

(573) *Polyborus cheriway cheriway* (Jacq.)

Falco cheriway JACQ., Beytr. Gesch. Vögel, 1784, p. 17, pl. iv (Aruba Island and coast of Venezuela).

Polyborus tharus, SCL., 1860d, p. 288 (Babahoyo); TACZ., 1877, p. 745 (Tumbez).

Polyborus cheriway, HART., 1898, p. 501 (Cayambe); S. & F., 1900, p. 27 (El Troje; Ibarra; Vinces; Puntilla de Santa Elena); GOODF., 1902, p. 223 (Corazon, 12,000 ft.); L. & R., 1922, p. 29 (Carapungo).

Daule, 1 ♂; Puna Is., 2 ♂, 1 ♀; Zaruma, 1 ♂; Alamor, 1 ♂.

RANGE.—Northern South America northward to Texas and Florida; *P. c. pallidus*, Tres Marias Is., western Mexico.

Ranges from the coast to the tableland. Our specimens are apparently typical.

¹ Geogr. Rev., XVI, 1926, pp. 52, 53.

(574) *Ibycter ater* (Vieill.)

Daptrius ater VIEILL., Analyse, 1816, p. 22 (Brazil).

Rio Suno, 1 ♂, 1 ♀.

RANGE.—Tropical Zone: Amazonia.

I find no previous definite record of the occurrence of this species in Ecuador. It is unknown in western Ecuador.

(575) *Ibycter americanus americanus* (Bodd.)

Falco americanus BODD., Tabl. Pl. Enl., 1783, p. 25 (Cayenne).

Ibycter americanus, SCL., 1858b, p. 451 (Gualaquiza); S. & F., 1900, p. 27 (Valle del Rio Zamora); HART., 1902, p. 605 (San Javier); L. & R., 1922, p. 29 (near Napo; road to Guala; Alonguinche).

Esmeraldas, 1 ♂; Pato de Pajaro, 2; Rio de Oro, 1 ♀; Rio Suno, 3 ♂; below San José, 2 ♂, 1 ♀.

RANGE.—Tropical Zone, north to Guatemala.

Found in both eastern and western Ecuador. Our specimens agree with others from British Guiana. Swann (Syn. Acc., 1921, p. 14) has separated the Central American form as *I. a. guatemalensis* on the basis of its larger size.

(577) *Ibycter carunculatus* (Des Murs)

Phalcobæus carunculatus DES MURS, Rev. et Mag. de Zool., 1853, p. 154 (Colombia); S. & F., 1900, p. 27 (Paredones; La Concepcion; Altiplane de Tarqui; Cañar; El Troje); MEN., 1911, p. 11 (Mozo Pichincha; crater of Pichincha).

Milvago megalopterus, SCL., 1858c, p. 555 (above Punin).

Milvago carunculatus, SCL., 1860b, p. 81 (Guagua Pichincha); GOODF., 1902, p. 222 (Pichincha; Vallevecioso).

Ibycter carunculatus, RHOADS, 1912, p. 148 (Paramo of Pichincha); L. & R., 1922, p. 29 (Chaupicruz; Antisana; Corazon; Tablon; near Nono, Pichincha).

Antisana, 1 ♂, 2 ♀; Mt. Chimborazo, 1 ♂, 1 ♀; Taraguacocha, 1 ♀; Cerro Guamani, near Papallacta, 2 ♂, 1 ♀

RANGE.—Paramo Zone of Ecuador and Colombia.

A very distinct species. The female resembles the female of *I. megalopterus* but is usually paler, has the feathers of the crown more recurved, the frontal area with black, bristle-like feathers, the bill longer, less deep, the inter-ramal space wider and barer, as in the male.

(583) *Circus cinereus* Vieill.

Circus cinereus VIEILL., Nouv. Dict. d'Hist. Nat., IV, 1816, p. 454 (Paraguay); S. & F., 1900, p. 29 (El Troje; Vallevecioso; Chaupi; Cañar); L. & R., 1922, p. 32 (Pichincha; Mt. Corazon; Iliniza; Cotopaxi; Romerillos; Zambiza).

? *Circus maculosus*, GOODF., 1902, p. 221 (Pedregal, 12,000 ft.; Corazon, 13,000 ft.). Above Chambo (Rhoads).
El Corazon, 1 ♀, 1 ?; Cerro Iliniza, 1 ♀ ad., 1 ♀ im.
RANGE.—South Temperate Zone ranging northward in the Andean Temperate and Paramo Zones to Ecuador and Colombia.

Apparently not separable from Argentine examples.

(585a) *Micrastur melanoleucus naso* (Less.)

Carnifex naso LESS., Rev. Zoöl., 1842, p. 378 (Realejo, Nic.).
Mindo, 1 ♂.
RANGE.—The species, Paraguay to Mexico.

I merely follow current treatment of this species which restricts *melanoleucus* Vieill. to the southern part of its range, *naso* Less. to the northern, while *buckleyi* Swann, described from eastern Ecuador, should doubtless be allotted to Transandea north of the Amazon. Our Ecuadorean specimens neither confirm nor disprove this arrangement, and I give their measurements as a contribution toward the thorough treatment of the species that my insufficient material prohibits. If our specimens from eastern Ecuador are properly sexed, it is difficult to explain the variation in size they present. The male from Mindo, as well as one from Rio Suno, is wholly melanistic, a phase of plumage I have not seen attributed to this species. The Rio Suno bird is jet-black; the Mindo one brownish black. Both have the tail crossed by four white bars, and have ochraceous bars on the abdomen and thighs.

Locality		Wing mm.	Tail mm.
Mindo	♂ melan.	247	265
Rio Suno	♂ melan.	245	235
Rio Suno	♂ ad.	213	215
San José	♂ ad.	215	235
Below Baeza	♂ im.	247	240

(585b) *Micrastur melanoleucus buckleyi* Swann

Micrastur melanoleucus buckleyi SWANN, Syn. of Acc., 2d ed., 1922, p. 25 (Sarayuacu, Ec.).
Micrastur melanoleucus, L. & R., 1922, p. 33 (Gualea; Nanegal).
Rio Suno, 1 ♂ ad., 1 ♂ melan.; San José, 1 ♂ ad.; below Baeza, 1 ♂ im.
RANGE.—Tropical Zone: the species, Paraguay to Mexico; the race, probably equatorial America east of the Andes.

See my remarks under the preceding form.

(588) *Micrastur gilvicollis* (Vieill.)

Sparvius gilvicollis VIEILL., Nouv. Dict. d'Hist. Nat., X, 1817, p. 323 (Cayenne).

Micrastur gilvicollis, SCL., 1860c, p. 96 (Nanegal); MEN., 1911, p. 12 (upper Napo).

RANGE.—Tropical South America.

While this species undoubtedly occurs in eastern Ecuador, I am in doubt about the allocation of Selater's record from Nanegal.

(588a) *Micrastur plumbeus* W. L. Scl.

Micrastur plumbeus W. L. SCL., Bull. B. O. C., XXXVIII, 1918, p. 44 (Carondelet, Prov. Esmeraldas).

RANGE.—Known only from the Tropical Zone in northwest Ecuador.

We have no specimens.

(589) *Micrastur guerilla interstes* Bangs

Micrastur interstes BANGS, Auk, XXIV, 1907, p. 289 (Cartago, Costa Rica).

Micrastur guerilla, B. & T., 1883, p. 574 (Chimbo); 1884, p. 310 (Surupata); MEN., 1911, p. 12 (Gualea).

Climacocercus guerilla interstes L. & R., 1922, p. 33 (Gualea; Verdecocha).

Bucay; junction Chanchan and Chiguancay (Rhoads).

Rio de Oro, 1♂; Gualea, 1♂ ad.; Zaruma, 1♂; El Chiral, 1♂.

RANGE.—Colombian-Pacific Fauna and north to Nicaragua.

Basing a comparison wholly on adults, I can detect no difference between birds from western Ecuador, Colombia, Panama, Costa Rica, and Nicaragua. Females have the back slightly, the wings decidedly browner than males, the underparts tinged with ochraceous and with the black bars wider.

(589a) *Micrastur guerilla jugularis* Gurney

Micrastur guerilla jugularis GURNEY, Diur. Bds. of Prey, 1884, p. 118 (Venezuela).

Rio Suno, 2 ♀ ad.; 1 ♀ im.; below San José, 1 ♀ im.

RANGE.—Northern South America, east of the Andes.

On purely geographical grounds I refer these specimens from eastern Ecuador to this form. The wing in the adult females measures 170 to 172 mm. The chest is not tinged with rufous; the bars in the tail are more nearly obsolete than in any other specimens of this species I have examined. We have no adults from Venezuela.

(591) *Geranospizias caerulescens caerulescens* (Vieill.)

Sparvius caerulescens VIEILL., Nouv. Dict. d'Hist. Nat., X, 1817, p. 318 ("On le trouve dans l'Amerique meridionale." Brab. & Chubb, 1912, "suggest Guiana").

Napo, 1.

RANGE.—The species, Argentina to Mexico; the race, northern South America, east of the Andes.

(591a) *Geranospizias caerulescens balzarensis* W. L. Scl.

Geranospizias niger balzarensis W. L. SCL., Bull. B. O. C., XXXVIII, 1918, p. 45 (Balzar, Ec.).

Geranospiza caerulescens, SCL., 1860, p. 288 (Babahoyo); TACZ., 1877, p. 329 (Lechugal); S. & F., 1900, p. 29 (Vinces; Peripa).

Daule, 1 ♂ ad., 1 im.; Puna Is., 1 ♂ im.

RANGE.—Tropical South America, west of the Andes to Panama.

These specimens are slightly darker than the Napo specimen and agree in color with others from Panama (Rio Tuyra, Canal Zone) to which region the range of this intermediate form should be extended.

(593a) *Parabuteo unicinctus harrisi* (Aud.)

Buteo harrisi AUD., Birds Amer. (folio), IV, 1837, pl. 392 (Mississippi).

Urubitinga unicincta, SCL., 1859a, p. 147 (Pallatanga); LAW., 1869, p. 238 (Puna Is.).

Spizigeranus unicinctus, SCL., 1860d, p. 288 (Babahoyo).

Erythrocnema unicincta, S. & F., 1900, p. 30 (La Concepcion).

Parabuteo unicinctus unicinctus, L. & R., 1922, p. 34 (near Zambiza; above Tumbaco (10,000 ft.), Cumbaya; Pichincha, 11,000 ft.)

Chone, 1 ♀; Puna Is., 1 ♂ im., 1 ♀; Casanga, 1 ♀.

RANGE.—The species, from the South Temperate to the North Temperate Zone; *P. u. unicinctus*, South America generally; *P. u. harrisi*, northern South America to Louisiana.

Recorded only from the Tropical Zone. Our specimens are apparently to be referred to *harrisi* rather than to *unicinctus*.

(596) *Astur pectoralis* Bonap.

Astur pectoralis BONAP., Rev. et Mag. de Zoöl., 1850, p. 490 (Brazil).

Rio Suno, ♂.

RANGE.—Tropical Zone; recorded from Brazil, Guiana, and eastern Ecuador.

This is a fine fully plumaged adult male of this rare Hawk which bears so close a resemblance in color to *Spizaetus ornatus*. The lesser

wing-coverts, outer scapulars, rump and upper tail-coverts are conspicuously margined with white. Wing, 268 mm.; tail, 196 mm.

(597) *Accipiter superciliosus superciliosus* (Linn.)

Falco superciliosus LINN., Syst. Nat., I, 1766, p. 128 (Surinam).

Accipiter tinus, S. & F., 1900, p. 29 (Valle del Rio Santiago).

RANGE.—Tropical Zone; the species, north to Costa Rica; the race, east of the Andes.

While not recorded from western Ecuador, its occurrence at Barbacoas, Colombia, leaves little doubt of the presence there of *A. s. exitiosus* Bangs and Penard.

(599) *Accipiter erythronemius salvini* (Ridgw.)

Nisus salvini RIDGW., Bull. U. S. Geol. Surv., 1876, p. 121 (Mérica, Ven.).

Accipiter erythrocnemius, SCL., 1860c, p. 96 (Nanegal).

L. & R., 1922, p. 35 (Pomasqui; above Nono; Mojanda; Niebli).

RANGE.—The species, southeastern Brazil and Bolivia to Venezuela.

We have no material and I place the two Ecuadorean records under the Venezuelan form provisionally.

(602) *Accipiter ventralis* Scl.

Accipiter ventralis SCL., P. Z. S., 1866, p. 303 ("In Nova Granada interior"); HART., 1902, p. 605 (Ibarra).

Accipiter nigroplumbeus LAWR., Ann. Lyc. Nat. Hist. N. Y., IX, 1869, p. 270 (Quito Valley; type in the Amer. Mus. examined).

Accipiter ventralis nigroplumbeus, L. & R., 1922, p. 34 (Pichincha; Mojanda; near Guala; Carapungo).

Bucay, 1 ♂ im.; Naranjo, 1 ♀ ad.; "Quito," 1 (type of *A. nigroplumbeus*).

RANGE.—Venezuela to Bolivia.

Evidently ranges from the Tropical to the Temperate Zone. Our Naranjo specimen is largely cinnamon-rufous below, the center of the breast and abdomen with more or less concealed grayish bars. A Bogotá skin has the underparts cinnamon-rufous with a trace of bars at the base of some of the breast feathers and a slight slaty wash on this area and on the sides. Further development of this slaty color would produce a bird like the type of *nigroplumbeus* in which the abdominal region is largely cinnamon-rufous while the breast is slaty. In the color of the upperparts, wings, and tail, and in size, the type of *nigroplumbeus* and the Naranjo specimen agree.

(605) *Accipiter pileatus* (Temm.)

Falco pileatus TEMM., Pl. Col., I, pl. 205, 1824 ("Bresil").

Accipiter pileatus, SCL., 1860a, p. 72 (Pallatanga); 1860c, p. 298 (Esmeraldas); L. & R., 1922, p. 36 (road to Gualaes).

RANGE.—Tropical South America.

We have no specimens from Ecuador.

(606) *Accipiter bicolor bicolor* (Vieill.)

Sparvius bicolor VIEILL., Nouv. Dict. d'Hist. Nat., X, 1817, p. 325 (Cayenne).

Accipiter bicolor, TACZ., 1877, p. 329 (Tumbez); *ibid.*, p. 333 (Palma); HART., 1898, p. 502 (Cachaví); S. & F., 1900, p. 29 (Pun); GOODF., 1902, p. 222 (Santo Domingo).

Accipiter bicolor schistochlamys, HELLM., Bull. B. O. C., XVI, 1906, p. 82 (Nanegal, Ec.); MEN., 1911, p. 12 (Santo Domingo); CHAPM., Bull. A. M. N. H., XXXVI, p. 242 (= *bicolor*); L. & R., 1922, p. 36 (Alonguinche; near Gualaes).

Chongon Hills, 1 ♂ im.; Rio de Oro, 1 ♂; Gualaes, 1 ♂ ad.; Portovelo, 1 ♂; Alamor, 1 ♂ ad., 1 ♂ im.; Baeza, 1 ♂ ad.; below San José, 3 ♀ ad., 2 ♂ im.

RANGE.—Amazonia to Mexico; both eastern and western Ecuador from the Tropical to Subtropical Zone.

Our adult males from western and eastern Ecuador agree and are slightly paler than Colombian specimens, including one from Florencia, thus confirming my belief (*l. c.*) in the non-validity of *A. b. schistochlamys*.

(609) *Heterospizias meridionalis meridionalis* (Lath.)

Falco meridionalis LATH., Ind. Orn., I, p. 36, 1790 (Cayenne).

Buteogallus meridionalis, SCL., 1860d, p. 288 (Babahoyo).

Heterospizias meridionalis, S. & F., 1900, p. 29 (Vinces).

Daule, 1 ♀ ad., 1 ♂ im.; Puna Is., 1 ♀ ad., 1 ♂ im.; Alamor, 1 ♂ im., Guainche, 1 ♂ im.

RANGE.—The species, tropical South America; *H. m. meridionalis* the northern form, *H. m. "australis"* the southern form.

Recorded only from western Ecuador. Lacking topotypical material, I cannot definitely identify our specimens. Two adult females measure, wing, 405 to 423 mm., while two adult females from Puerto Pinasco and the Rio Negro, Paraguay, measure respectively 425 mm. and 423 mm. Thus, the larger Ecuadorean bird is essentially the size of the southern form, and, furthermore, is darker than either of the Paraguay birds, which should represent *australis*, if that proposed form is valid.

(610) *Buteo albicaudatus albicaudatus* Vieill.

Buteo albicaudatus VIEILL., Nouv. Dict. d'Hist. Nat., IV, 1816, p. 477 ("l'Amerique meridionale").

Tachytriorchis albicaudatus, GOODF., 1902, p. 221 (Pichincha and Corazon, 12,000 ft.).

Buteo hyospodius, L. & R., 1922, p. 37 (Pichincha; Antisana).

RANGE.—The species, Argentina to Texas.

Dr. Stresemann has shown¹ that *Buteo hyospodius* Gurney is synonymous with *Buteo albicaudatus*. He is, however, I think, mistaken in stating that the Antioquian form is referable to the northern *albicaudatus sennetti* rather than the southern *albicaudatus albicaudatus*. Fortunately, we have a fully adult specimen from San Pedro, Antioquia, which has the throat slaty black and is otherwise wholly typical of true *albicaudatus*. In *sennetti*, it will be recalled, the adult has the throat white, like the rest of the underparts. All our 14 adult topotypical specimens of *sennetti* have the throat white, while in our 8 adults of *albicaudatus* from southern Brazil it is black. This character is evidently, therefore, diagnostic and readily identifies our Antioquian specimen.

In this connection it may be added that my *B. a. exiguus* from northern South America east of the Andes is considered by Stresemann (*loc. cit.*) to be the same as *B. a. colonus* Berl. of Curacao and other islands off Venezuela.

We have no specimens from Ecuador.

(613) *Buteo melanoleucus* Vieill.

Buteo melanoleucus VIEILL., Nouv. Dict. d'Hist. Nat., XXXII, 1819, p. 57 (Paraguay); HART., 1898, p. 501 (Cayambe); CHUBB, 1919, p. 281 (Sinche; Guarananda).

Geranoaëtus aguiä, TACZ., 1877, p. 745 (Tumbez).

Geranoaëtus melanoleucus, S. & F., 1900, p. 30 (La Concepcion; Chaupi; Cuenca); GOODF., 1902, p. 222 (Quito); L. & R., 1922, p. 36 (La Carolina; Pichincha; Chaupicruz; Corazon; near Quito).

Huigra; near Quito (Rhoads).

RANGE.—South America generally.

Northern and southern races of this Hawk have been described by Swann (*Syn. Acc.*, 1922, pp. 67, 68), but I have no material to determine the status of the Ecuadorean form.

¹ J. f. O., 1925, p. 317.

(615) **Buteo polyosoma polyosoma** (Quoy & Gaim.)

Falco polyosoma, QUOY & GAIM., Voy. Uran. Ois., 1824, p. 92, pl. 14 (Falkland Is.).
Halizæetus erythronotus KING, Zoöl. Journ., III, 1827, p. 424 (Straits of Magellan).
Buteo unicolor LAFR. & D'ORB., Mag. Zoöl., VII, 1837, p. 7 (Palca, Bol.).
Buteo erythronotus, JARD., 1855, p. 117 ("Elevated tableland of the eastern Cordillera"); S. & F., 1900, p. 30 (La Concepcion).
Buteo erythronotus peruviansis, L. & R., 1922, p. 37 (Pichincha, 11,000 to 12,000 ft.; Mt. Atacaza, 11,000 ft.; above Pomasqui, 9,000 ft.; western Mojanda, 9,000 ft.).
Guapulo, ♀, 1st year; Chimborazo, 1 ♂, melan.; "Ambato," 1, 2d year; Corazon, 1 ♂, 3d year. Colombia: Santa Isabel (10,500 ft.), ♀, 2d year.
RANGE.—Temperate Zone: the species, Tierra del Fuego to Colombia; the race, the same except coast of Peru and Ecuador.

In writing on the birds of the Urubamba Valley¹ I referred three melanistic specimens of *Buteo* to *B. erythronotus*. These specimens were subsequently examined by Mr. Kirke Swann and declared by him to be *Buteo polyosoma*. I now find that my belief of their identity with the bird then known as *erythronotus* is held by Dr. Stresemann,² who adopts the name *polyosoma* for the species and thereby, I believe, in part, solves a problem which has long puzzled ornithologists. I cannot, however, follow Dr. Stresemann in recognizing a north Andean form of this species for which he accepts the name *unicolor* Lafr. & d'Orb. After making all possible allowance for differences due to sex and age, the variations in size of this species are too great to be of diagnostic value, with the possible exception of those shown by specimens from the coast of Ecuador of which I speak below. Nor am I clear concerning the relationships of *polyosoma* and the bird known as *pæcilochrous*, as I state under that form. In that connection I comment on several of the specimens listed here under the name *polyosoma*, but they may also be described here. They measure as follows:

Place	Age	Wing mm.	Tail mm.
Chimborazo, Ec.	♂ ad., melan.	420	217
Ambato, Ec.	? 2d year	391	229
Corazon, Ec.	♂ 3d year	427	225
Guápulo, Ec.	♀ 1st year	395	225
Santa Isabel, Col.	♀ 2d year	397	243
Cuchacancha, Bol.	♀ ad.	427	226

All these birds have the third primary longer than the fifth, and, if this character is diagnostic, should not, therefore, be referred to *pæcilochrous*. None of the immature birds has the black on the throat which

¹ Bull. No. 117, U. S. Nat. Mus., 1921, p. 58.
² J. f. O., 1925, p. 314; an important review of the group.

is present in all the specimens of true *albicaudatus* and all immature specimens of *sennetti*, 40 in all. The Chimborazan bird is uniformly gray with a white, black-barred tail and resembles, therefore, Quoy and Gaimard's plate of *polyosoma*. The absence of rufous in the plumage indicates that it is correctly sexed. Its large size induced me to refer it to *pæcilochrous* in my Urubamba paper, but its wing formula is obviously that attributed to *polyosoma*. The Corazon bird has the throat and breast buffy white, practically unmarked, and agrees in size with the one from Chimborazo, as well as with a female from Bolivia. These specimens are all larger than any measurements given for *polyosoma* by Stresemann, although they are measured without flattening the wing. They agree, indeed, in size with measurements given for *pæcilochrous* but, as already remarked, their primary formula is that of *polyosoma*. On the other hand, the remaining two birds from Ecuador and one from Colombia are notably smaller, but they also have the primary formula of *polyosoma* and their color is unlike any one of our immature specimens of *albicaudatus sennetti* (which Stresemann considers a synonym of *hypospodius* Gurney of Colombia). If all these specimens are to be referred to *polyosoma* they present a variation in size that discredits the claims of *unicolor* to recognition; and the same result is reached if the larger specimens should be referred to *pæcilo-chrous*. The case obviously, therefore, is by no means closed.

(615a) ***Buteo polyosoma peruvienis* (Swann)**

Buteo erythronotus peruvienis SWANN, Syn. of Acc., Rev. Ed., I, 1922, p. 65 (Eten. Peru).

Buteo erythronotus, Tacz., 1877, p. 745 (Tumbez); S. & F., 1900, p. 30 (Santa Elena) Punta Santa Elena, 1 ♂, nearly adult; 1 ♀, 3d year.

RANGE.—Probably coast of northern Peru and southern Ecuador.

Two specimens from the coast of Ecuador represent the northern extension of a South Temperate element in the Santa Elena region. They are smaller than any comparable specimens I have seen, measuring:

Place	Age	Wing mm.	Tail mm.
Punta Santa Elena, Ec., ♂	adult	350	178
Punta Santa Elena, Ec., ♀	3d year	373	192

While these measurements are smaller than those given by Swann for *peruvienis*, it is not probable that the Ecuadorean bird is separable from the form inhabiting the north Peruvian coast, and if a northern

form is to be recognized, the name *peruvien**sis* will doubtless be applicable to it.

The male from Santa Elena, while immaculate white below, has the interscapulars chestnut-rufous (a character sometimes shown by this sex¹) but in other respects it can be matched in color by a north Chilean bird.

(618) *Buteo pæcilo**chrous* Gurney

*Buteo pæcilo**chrous* GURNEY, Ibis, 1879, p. 176 (Yanayacu, Ec.); L. & R., 1922, p. 40 (Pichincha; Chaupieruz; Chilogallo; near Cotocallo; Tumbaco); STRESEMANN, J. f. O., 1925, p. 316 (Yanayacu; crit.).

Bestion, 1 ♂ ad., 1 ♂ first year.

RANGE.—Temperate Zone; northern Argentina to northern Ecuador.

According to Dr. Stresemann, this species is to be distinguished from *Buteo polyosoma* by its larger size and difference in the relative length of the third and fifth primaries (from without). In *pæcilo**chrous*, the third primary is shorter than or equal to the fifth, while in *polyosoma* it is longer than and rarely equal to the fifth.

Among our 45 specimens² of these two species, taken from the Falkland Islands and Tierra del Fuego to Colombia, only five have the primary formula given for *pæcilo**chrous*, as follows:

Place		Age	Wing mm.	Tail mm.
"Chile"	?	1st year, melan.	440	259
Puno, Titicaca	♂	3d year, normal	418	238
La Raya, Peru ³	♀	ad., melan.	467	245
Bestion (10,000 ft.), Ec.	♂	ad., normal	435	223
Bestion (10,000 ft.), Ec.	♂	2d year, normal	424	243

The three normal specimens can be matched in color and, in some instances in size by specimens in which the third primary is longer than the fifth and which, therefore, according to Stresemann, should be referred to *polyosoma*. For example, a male in third-year plumage from Corazon, Ecuador, agrees with the Puno bird below and in the color of the tail, but has less red above and measures, wing 427 mm., tail 225 mm., while the third primary is 36 mm. longer than the fifth. Again, a nearly adult female from Cuchacancha (11,000 ft.), Bolivia, measures, wing 427 mm., tail 226 mm., and a gray male (resembling in color

¹ See Swann, *loc. cit.*

² A list of the more southern of these specimens, with measurements, is given in my paper on Urubamba Valley birds, Bull. No. 117, U. S. Nat. Mus., 1921, p. 58.

³ Three other specimens from La Raya, recorded in the paper above mentioned, are in the National Museum.

Quoy and Gaimard's plate of *polyosoma*) from Chimborazo measures, wing 420 mm., tail 217 mm. In both the two latter birds the third primary is 12 mm. longer than the fifth. It follows, therefore, that in the light of our present understanding *pæcilochrous* can be distinguished from *polyosoma* only by a slight and admittedly inconstant difference in the primary formula, and in view of the fact that both occur together from at least northern Argentina northward, I feel that our knowledge of their relationships is very far from satisfactory

(619) ***Buteo swainsoni* Bonap.**

Buteo swainsoni BONAP., Geog. & Comp. List, 1838, p. 3 (near the Columbia River); L. & R., 1922, p. 40 (Zambiza, Jan. 15).

RANGE.—North and South America.

We have no specimens from Ecuador.

(620) ***Buteo platypterus platypterus* (Vieill.)**

Sparvius platypterus VIEILL., Tabl. Encycl. Meth., III, 1823, p. 1273 (near Philadelphia, Pa.).

Buteo pennsylvanicus, SCL., 1858b, p. 451 (Gualaquiza); 1860a, p. 71 (Pallatanga); B. & T., 1883, p. 574 (Chimbo); 1885, p. 110 (San Rafael).

Buteo latissimus, HART., 1898, p. 501 (Paramba); GOODF., 1902, p. 221 (Archidona; Guacamayo range beyond Baeza).

Buteo platypterus, L. & R., 1922, p. 40 (Pichincha, Dec.; road to Mindo, March; Guala, Dec., Feb., July 10; Zambiza, Nov.; Alonguinche, March; Sincholagua, 13,500 ft., 1 ♀ juv., June 16; Pomasqui, Aug. 1; Rio Guallabamba, Dec.).

Below Chambo (Rhoads).

Naranjo, 1 ♀ im. (Dec. 19); Bucay, 1 ♂ im. (Dec. 1); below Oyacachi, 2 ♀ (Jan. 30; Feb. 1); above Baeza, 1 ♂ (Feb. 13); Rio Suno, 1 ♀ (Feb. 11).

RANGE.—Eastern North America south to Brazil. There are two races in the Lesser Antilles but the species is not known to nest in South America.

This species is presumably only a winter visitant to Ecuador. Our specimens do not differ appreciably from typical ones in color, but the one from Naranjo labelled "♀" has the wing only 251 mm., while the "♂" from Bucay has the wing 263 mm., a difference possibly due to errors in sexing.

Found both in eastern and western Ecuador from the Tropical Zone to the Paramo Zone. Our specimens were all taken in winter, but Lönnberg and Rendahl record the species as present in June, July, and August.

(621) *Buteo brachyurus* Vieill.

Buteo brachyurus VIEILL., Nouv. Dict. d'Hist. Nat., IV, 1816, p. 477 (Cayenne?).

Buteola brachyura, B. & T., 1883, p. 574 (Chimbo).

RANGE.—Brazil to Florida.

We have no specimens from Ecuador.

(623) *Asturina nitida nitida* (Lath.)

Falco nitidus LATH., Ind. Orn., I, 1790, p. 41 ("Cayana").

Asturina nitida, SCL., 1860d, p. 288 (Babahoyo); S. & F., 1900, p. 30 (Gualaquiza).

Zamora, 1 ♂.

RANGE.—Tropical Zone: the species, southeast Brazil to Central America; the race, southeast Brazil to Panama.

(625) *Rupornis magnirostris magnirostris* (Gmel.) or subspecies

Falco magnirostris GMEL., Syst. Nat., I, 1788, p. 282 (Cayenne).

Asturina magnirostris, SCL., 1858b, p. 451 (Gualaquiza); 1859a, p. 147 (Palatanga); 1860d, p. 288 (Babahoyo); HART., 1898, p. 501 (Chimbo).

Rupornis magnirostris, S. & F., 1900, p. 30 (Gualaquiza; Vines).

Rupornis magnirostris magnirostris, CHAPM., Bull. A. M. N. H., XXXVI, p. 243 (Esmeraldas; Santa Rosa; Naranjo; Prov. Guayas; Daule).

Rupornis magnirostris ecuadoriensis SWANN, Syn. Acc., II, 1922, p. 91 (Vaquerio [= Vaqueria ?] Ec.).

Bucay (Rhoads).

Esmeraldas, 2 ♂, 1 ♀, 1 ?; Pato de Pájaro, 1 ♀; Punta Santa Ana, 1 ♀; Alamor, 2 ♂, 2 ♀; Naranjo, 1 ♂, 1 ♀; Daule, 1 ♀; Santa Rosa, 1 ♂; below San José, 1 ♂.

RANGE.—The species, Paraguay to Mexico.

In discussing the status of *Rupornis magnirostris* in Colombia (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, pp. 243–246), I stated that, while specimens from western Ecuador were not wholly typical of *magnirostris*, they were so much nearer to that race than to *ruficauda* that, in my mind, no doubt existed but that they should be referred to the former rather than to the latter. The receipt of additional material confirms me in this belief. In certain respects, notably the coloration of the thighs and traces of rufous in the tail, one-half of our specimens show an approach to *ruficauda*, but the remainder cannot certainly be distinguished from *magnirostris* as that species is represented in our collections from eastern Colombia, eastern Venezuela, and the lower Orinoco. It is an interesting fact that the specimens presenting evidences of relationship with *ruficauda* are chiefly from northwestern

Ecuador, while those agreeing with *magnirostris* are from southwestern Ecuador. I have already (*l. c.*) recorded the presence of essentially typical *magnirostris*, also of apparent intergrades between that form and *ruficauda* from western Colombia (Atrato), and it is possible that these northwestern Ecuadorean birds may be the results of the fusion of these two races, while the southwestern Ecuadorean birds may have reached that region direct from Amazonia through the Marañon.

The case is far too interesting to close by the mere description of a western Ecuadorean form, and I feel may best be kept open for further research by the provisional treatment here accorded it.

Measurements of Females

Locality	No.	Wing mm.	Tail mm.
Vicinity Paramaribo, D. G.	2	225-227	155
Vicinity Villavicencio, Col.	4	228-239 (233)	151-170 (161)
Vicinity Honda, Col.	5	208-242 (223)	151-173 (157)
Western Ecuador	5	219-233 (222)	144-160 (152)

(625a) *Rupornis magnirostris zamoræ* Chapm.

Rupornis magnirostris zamoræ CHAPM., Am. Mus. Novit., No. 31, 1922, p. 3 (Zamora, Ec.).

Sabanilla, 1; Zamora, 2.

Subspecific Characters.—Similar to *Rupornis magnirostris magnirostris* (Gmel.) but darker, the upperparts deep neutral gray, the bars of the abdominal region and tibiae russet, the bordering gray bars darker and broader, sometimes largely replacing the russet bar lying between them; bars on the tibiae of the same color as those on abdomen; tail, upper tail-coverts, and under wing-coverts without trace of ochraceous or cinnamon-rufous.

RANGE.—Southeastern Ecuador.

Although the three birds above recorded are obviously different from true *magnirostris*, the occurrence of a typical specimen of that race below San José de Sumaco, in connection with the capture of a specimen of 'zamora' at La Palma in the upper Magdalena Valley, raises a doubt as to the validity of this race.

(628) *Rupornis leucorrhoa* (Quoy & Gaim.)

Falco leucorrhous QUOY & GAIM., Voy. de l'Uran., 1824, p. 91, pl. 13 (Brazil).

Rupornis leucorrhoa, L. & R., 1922, p. 41 (Alonguinche; Piganta; Maspa).

El Chiral, 1 ♀; above Baeza, 1 ♂.

RANGE.—Brazil to Colombia, including both western and eastern Ecuador up to Temperate Zone.

(631) *Urubitinga urubitinga* (Gmel.)

Falco urubitinga GMEL., Syst. Nat., I, 1788, p. 265 (Brasilia).

Urubitinga zonura, SCL., 1860d, p. 288 (Babahoyo); S. & F., 1900, p. 30 (Rio Peripa).

Urubitinga urubitinga, HART., 1902, p. 605 (Bulón).

Urubitinga urubitinga occidentalis SWANN., Syn. Acc., II, 1922, p. 97 (Rio Bogotá).

Daule, 1 im.; Alamor, 1 ♀ im.; Rio Pullango, 1 ♂ im.

RANGE.—Argentina to Colombia.

Swann describes a form of this species from western Ecuador as "smaller (♀, wing 375 mm.) and with the subterminal [=basal] tail band 100 mm., the white band [=terminal?] narrower." An immature male from Pullango on the Rio Tumbez measures, wing 395 mm., as large, therefore, as the smallest specimens of true *urubitinga*. On the other hand, adults from the Chocó region of Colombia are smaller (♀, wing 380 mm.) than others from Brazil (♀, 406 mm.) and there is a proportionate difference in the amount of white in the tail. If this difference be considered sufficient to warrant the recognition of a Pacific coast race, specimens from western Ecuador would be referred to it, while those from eastern Ecuador would doubtless be identified as true *urubitinga*.

(632) *Urubitinga anthracina subtilis* Thayer & Bangs

Urubitinga subtilis THAYER & BANGS., Bull. M. C. Z., XLVI, 1904, p. 94 (Gorgona Is.).

Urubitinga anthracina, LAWR., 1869, p. 238 (Puna Is.); TACZ., 1877, p. 329 (Lechugal).

Puna Is., 1 ♂ ?, 1 ♀ im.

RANGE.—Colombian-Pacific Fauna from southern Ecuador to eastern Panama.

The amount of rufous in the wings is obviously dependent on age, fully mature birds having less. But even among adults there is much variation in this character. One example from Puna Island has no more rufous than a bird from Citaro in Darien, and specimens from the latter region, while nearer *subtilis*, show sufficient approach to *anthracina* to indicate the intergradation of these two forms. Two immature birds from Puna Island are unlike any specimens of *anthracina* in our collection. The younger is apparently albinistic though, singularly enough, it is not unlike a specimen from the Rio Tuyra in eastern Panama. The prevailing color of the older bird is brownish, darker below, with a fuscous tail and broken white subterminal band; the upper parts are

mottled or barred with rusty and the inner web of the inner wing-quills is largely this color.

(634) **Leucopternis schistacea** (Sundev.)

Asturina schistacea SUNDEV., Öfv. K. Vet. Akad. Förh., 1850, p. 132 (Brazil)
Urubitinga schistacea, TACZ., 1877, p. 745 (Santa Luzia).

Rio Suno, 1 ♀.

RANGE.—Tropical Zone.

(635) **Leucopternis plumbea** Salv.

Leucopternis plumbea SALV., Ibis, 1872, p. 240, pl. viii (Ecuador); HART., 1902, p. 605 (Paramba).

Rio de Oro, 1 ♂; Mindo, 1 ♂.

RANGE.—Tropical Zone; western Ecuador.

While apparently a representative of *L. schistacea*, this bird appears to be specifically distinct from it.

(636) **Leucopternis albicollis** (Lath.)

Falco albicollis LATH., Ind., Orn., I, 1790, p. 36 ("Cayana").

Leucopternis albicollis, S. & F., 1900, p. 31 (Gualaquiza).

Below San José, 3 ♂, 2 ♀.

RANGE.—Tropical Zone; Amazonia.

(637) **Leucopternis occidentalis** Salv.

Leucopternis occidentalis SALV., Ibis, 1876, p. 496 (type not labeled; believed to have come from the "Province of Loxa or Puna Island").

Alamor, 1 ♂ ad.; Celica, 1 im.; Salvias, 1 ♂ im.; Las Piñas, 1 ♀ ad.; Rio Pullango, 1 ♀ ad.; Cebollal, 1 ♂ ad.; Guainche, 1 ♂ ad.; Pichincha, 1 ♂.

RANGE.—Western Ecuador from the Peruvian boundary northward.

All but one of our specimens are from the Subtropical Zone, but this species may be expected to occur also in the tropics. The exception referred to, a nearly adult male said to have been taken "on the road to the crater" of Pichincha, is decidedly paler than any other bird of this species in our collection and has traces of bars on the sides. While evidently a representative of *L. albicollis*, *L. occidentalis* appears to be specifically distinct from that species.

(641) ***Leucopternis melanops* (Lath.)**

Falco melanops LATH., Ind. Orn., I, 1790, p. 37 ("Cayana").

Rio Suno, 2 ♂.

RANGE.—Tropical Zone; Amazonia.

There appears to be no previous definite record for Ecuador

(642) ***Leucopternis semiplumbea* Lawr.**

Leucopternis semiplumbea LAW., Ann. Lyc. Nat. Hist. N. Y., VII, 1861, p. 288 (Panama); HART., 1902, p. 605 (San Javier).

RANGE.—Tropical Zone; northwestern Ecuador to Nicaragua.

We have no specimens from Ecuador.

(643) ***Leucopternis princeps* Scl.**

Leucopternis princeps SCL., P. Z. S., 1865, p. 429, pl. xxiv, ("Costa Rica in montibus"); HART., 1902, p. 605 (Rio Cayapas); L. & R., 1922, p. 41 (near Gualca).

El Chiral, 1 ♀; San José de Sumaco, 1 ♂.

RANGE.—Known only from Costa Rica, eastern and western Ecuador.

(644) ***Harpyhaliaëtus coronatus* (Vieill.)**

Harpyia coronata VIEILL., Nouv. Dict. d'Hist. Nat., XIV, 1817, p. 237 (Paraguay).

Harpyhaliaëtus coronatus, B. & T., 1885, p. 110 (Rio Topo).

RANGE.—Argentina to Central America.

We have no specimens from Ecuador.

(645) ***Harpyhaliaëtus solitarius* Tsch.**

Harpyhaliaëtus solitarius TSCH., Arch. für Naturg., 1844, p. 246 (Peru).

Sabanilla, 1 ♂.

RANGE.—Chile to Mexico.

Agrees with a specimen from Santo Domingo, southeastern Peru.

(647) ***Morphnus tæniatus* Gurney**

Morphnus tæniatus GURNEY, Ibis, 1879, p. 176, pl. 3 (Sarayacu, Ec.).

Below San José, 1 ♀ im.

RANGE.—Known only from eastern Ecuador.

(649) *Oroaëtus*¹ *isidori* (Des Murs)

Falco isidori DES MURS, Rev. Zoöl., 1845, p. 175.

Lophotriorchis isidori, CHUBB, 1919, p. 284 (Baeza).

Baeza, 1 ♂, 1 ♀.

RANGE.—Ecuador and Colombia.

Agrees with Colombian specimens.

(651) *Spizaëtus ornatus* (Daud.)

Falco ornatus DAUD., Traité d'Orn., II, 1800, p. 77 (Cayenne).

Spizaëtus ornatus, L. & R., 1922, p. 42 (Gualea).

RANGE.—Paraguay to Central America.

We have no specimens from Ecuador.

(652) *Spizaëtus devillei* DuBois

Spizaëtus devillei DuBOIS, Bull. Acad. Belg., (2), XXXVIII, 1874, p. 129, plls. and 2 (Baeza, Ec.).

RANGE.—Known only from eastern Ecuador.

We have no specimens.

(654a) *Herpetotheres cachinnans fulvescens* Chapm.

Herpetotheres cachinnans fulvescens CHAPM., Bull. A. M. N. H., XXXIV, 1915, p. 638 (Alto Bonito, Rio Sucio, w. Col.).

Herpetotheres cachinnans, SCL., 1860d, p. 288 (Babahoyo); 1860c, p. 298 (Esmeraldas); TACZ., 1877, p. 329 (Lechugal); HART., 1898, p. 501 (Paramba).

Rio de Oro, 2 ♂; Puna Is., 1 ♂; Bucay, 1 ♂; Chongoncito, 1 ♂.

RANGE.—Tropical Zone; western Ecuador and western Colombia.

In Ecuador; this species has been recorded only from the Tropical Zone. The Puna Island bird might be expected to show some approach toward *cachinnans maestus* Bangs and Noble, of northwestern Peru, but it resembles the remaining specimens, and all agree with the type of *fulvescens*.

(654) *Herpetotheres cachinnans cachinnans* (Linn.)

Falco cachinnans LINN., Syst. Nat., I, 1758, p. 90 ("Amer. meridionali" = Surinam, by Berlepsch, Nov. Zoöl., XV, p. 290).

Huilca, Macas region, 1 im.

¹ Ridgw., Smiths. Miscel. Coll., No. 72, 1920, p. 1.

RANGE.—Tropical Zone: the species, Paraguay to Mexico; the race, northern South America east of the Andes.

This specimen has the white underparts of true *cachinnans* and is provisionally referred to that race.

(655) ***Elanoides forficatus forficatus* (Linn.)**

Falco forficatus LINN., Syst. Nat., I, 1758, p. 89 (Carolina).

Bucay, 1 ♂ ad. (Dec. 7).

RANGE.—Nicaragua to the southern United States, southward in winter as far, at least, as Ecuador.

This specimen is to be referred to the northern, rather than to the southern form, and indicates that true *forficatus* winters at least as far southward as Ecuador. Doubtless the records placed under *E. f. yetapa* belong, at least in part, to this species.

(655a) ***Elanoides forficatus yetapa* Bonn. & Vieill.**

Elanoides yetapa BONN. & VIEILL., Enc. Meth., III, 1823, p. 1205 (Paraguay).

Elanoides furcatus, GOODF., 1902, p. 222 (Santo Domingo).

? *Elanoides forficatus*, L. & R., 1922, p. 42 (near Gualea; Santo Domingo; arrives end of Sept. or beginning of Oct., very common Nov.–March).

Punta Santa Ana, 1 ♂; Sabanilla, 1 ♂; San José, 1 ♀.

RANGE.—Paraguay north to Costa Rica.

Found in the Tropical Zone (and doubtless higher). A further review of our large number of Swallow-tailed Kites, including topotypical series of both *forficatus* and *yetapa*, confirms the differences between these forms to which attention was called in my paper on Colombian birds (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 249). A specimen from Chiriqui, western Panama, is quite typical of *yetapa*, indicating that the South American form extends at least to that point.

(656) ***Rostrhamus sociabilis sociabilis* (Vieill.)**

Herpetotheres sociabilis VIEILL., Nouv. Dict. d'Hist. Nat., XVIII, 1817, p. 318 (S. A., Lat. 27°–30° S.).

Rostrhamus sociabilis, SCL., 1858a, p. 60 (Napo); 1860d, p. 289 (Babahoyo).

Rostrhamus leucopygus, S. & F., 1900, p. 31 (Vinces).

RANGE.—Tropical Zone: the species, Argentina to Florida; the race, South America.

Common in the Yaguachi Marshes. We have no specimens from Ecuador.

(658) **Chondrohierax uncinatus** (Temm.)

Falco uncinatus TEMM., Pl. Col., I, 1822, pls. 103, 104 (Rio Janeiro).

Leptodon uncinatus, HART., 1898, p. 501 (Paramba).

Chondrohierax uncinatus, L. & R., 1922, p. 42 (near Gualea).

Esmeraldas, 4 ♂, 2 ♀; Chone, 1 ♂, 1 ♀.

RANGE.—Tropical Zone generally.

Our specimens are all from the Tropical Zone of western Ecuador. No two are exactly alike in plumage, and we lack material to determine their exact affinities. They are smaller in general dimensions than Mexican specimens and apparently agree with Brazilian ones, but the hook of the mandible averages longer than in either.

(660) **Odontriorchis palliatus** (Temm.)

Falco palliatus TEMM., Pl. Col., II, 1823, pl. 204 (Brazil).

Cymindis cayanensis, SCL., 1860d, p. 289 (Babahoyo).

Leptodon cayennensis, HART., 1902, p. 605 (Bulón).

RANGE.—Tropical Zone; southeastern Brazil to Central America.

(662a) **Gampsonyx swainsoni magnus** Chubb.

Gampsonyx swainsonii magnus CHUBB, Bull. B. O. C., XXXIX, 1918, p. 21 (Amotope, Peru); 1919, p. 287 (Guayaquil; Puna Is.).

Gampsonyx swainsoni, Tacz., 1877, p. 745 (Tumbez).

Manaví, 1 ♂; Puna Is., 1 ♀; Portovelo, 1 ♀.

RANGE.—The species, Paraguay to Nicaragua; *magnus*, western Ecuador and western Peru.

In Ecuador, known only from the Tropical Zone. Doubtless, the Amazonian Fauna form is true *swainsoni*. Our birds measure, females, wing 173 to 178 mm.; male, wing 162 mm.

(664) **Harpagus bidentatus** (Lath.)

Falco bidentatus LATH., Ind. Orn., I, 1790, p. 38 ("Cayana").

Harpagus bidentatus, B. & T., 1883, p. 574 (Chimbo); HART., 1898, p. 502 (Chimbo); CHUBB, 1919, p. 287 (Mirador; Baños); L. & R., 1922, p. 42 (near Niebli, 7,500 ft., near Gualea).

Below San José, 1 ♂; Zamora, 1 ♀; Rio de Oro, 1 ♂.

RANGE.—Peru to Venezuela.

Recorded from the Tropical Zone in western Ecuador and the Sub-tropical Zone in eastern Ecuador.

(665) *Ictinia plumbea* (Gmel.)

Falco plumbeus GMEL., Syst. Nat., I, 1788, p. 283 (Cayenne); S. & F., 1900, p. 31 (Valle de Zamora); L. & R., 1922, p. 42 (near Mérida).

Esmeraldas, 1♂; Rio de Oro, 1♂; Naranjo, 2♂; Santa Rosa, 1♂; Puna Is., 1♂; Macas region, 1; Rio Suno, 1♂.

RANGE.—Tropical Zone; Paraguay to Mexico.

In size, our specimens are intermediate between large northern birds (*Ictinia plumbea* "vagens" Miller & Griscom, Amer. Mus. Novit., No. 25, 1921, p. 5, now considered invalid by its authors) and smaller southern ones. Their measurements are appended:

Place	Date	Wing mm.
Esmeraldas ♂	Oct. 4	302
Rio de Oro ♂	Jan. 13	305
Naranjo ♂	Dec. 19	294
Naranjo ♂	Dec. 19	302
Santa Rosa ♂	Dec. 22	305
Rio Suno ♀	Dec. 15	303

(667) *Falco peregrinus anatum* Bonap.

Falco anatum BONAP., Geog. & Comp. List Bds. Eur. and N. Amer., 1838, p. 4 (Egg Harbor, N. J.).

Falco sp., S. & F., 1900, p. 31 (Puntilla de Santa Elena, Jan.).

Falco peregrinus anatum, L. & R., 1922, p. 42 (Pichincha, Oct.; Pomasqui, June 20, Sept.; Chaupicruz, May 8).

Carapungo, 9 miles north of Quito, 1♂ im. (July 14, 1917—L. Söderstrom); El Muerto Is., ♂ ad. (Feb. 26).

RANGE.—The species, nearly cosmopolitan; the race, Western Hemisphere, except extreme southern and northwestern parts.

As the above records show, Duck Hawks have been recorded from Ecuador throughout the year, but we have no knowledge of their breeding there. Salvadori and Festa record an immature Peregrine Falcon from Punta Santa Elena, but are in doubt as to whether it should be referred to "peregrinus" [= *anatum*] or "pealei," but an adult male taken by Murphy and Heilner on El Muerto Island is unquestionably *anatum*.

(669a) *Falco fusco-cærulescens pichinchæ* Chapm.

Falco fusco-cærulescens pichinchæ CHAPM., Amer. Mus. Novit., No. 205, 1925, p. 1 (crater of Pichincha, Ec.).

Falco fusco-cærulescens, GOODF., 1902, p. 222 (Antisana, 12,000 ft.); L. & R., 1922, p. 42 (Carapungo; Chaupicruz; Zambiza).

Antisana, 1 ♀ (June 13); Pichincha, 1 ♀ (Dec. 6); Iliniza, 1 ♀ (Nov. 30).

Subspecific Characters.—Larger than *Falco fusco-cærulescens fusco-cærulescens* (Vieill.) of Paraguay, resembling in size *Falco fusco-cærulescens septentrionalis* Todd of the Mexican boundary, but darker above, especially on the crown; the zinc-orange tints averaging deeper on the breast, the black area smaller and divided medianly.

RANGE.—The species, Tierra del Fuego to Texas; the race, Paramo (and arid Temperate ?) Zone of Ecuador (northward and southward ?).

The Aplomado Falcon of the high Andes in Ecuador proves to be a distinct race as large as the largest form but differing from it in color.

(671) *Falco albigularis* Daud.

Falco albigularis DAUD., *Traité d'Orn.*, II, 1800, p. 131 (Cayenne); L. & R., 1922, p. 42 (Mindó).

Hypotriorchis rufigularis, B. & T., 1883, p. 574 (Chimbo).

RANGE.—Argentina to Mexico.

We have no specimens from Ecuador.

(672) *Falco deiroleucus* Temm.

Falco deiroleucus TEMM., *Pl. Col.*, I, 1825, pl. cccxlviii ("Bresil").

Falco albigularis, HART., 1898, p. 501 (Paramba); S. & F., 1900, p. 31 (Guala quiza; San José); GOODF., 1902, p. 222 (Santo Domingo).

RANGE.—Brazil to Mexico.

We have no specimens from Ecuador.

(673) *Falco columbarius columbarius* Linn.

Falco columbarius LINN., *Syst. Nat.*, I, 1758, p. 90 (Carolina); S. & F., 1900, p. 31 (Cañar); L. & R., 1922, p. 42 (Carapungo, Oct.; Chaupicruz, April, Nov.; Zambiza, Jan., March, May; Pomasqui, June).

Hypotriorchis columbarius, SCL., 1858b, p. 450 (Cuenca).

Esmeraldas, 1 ♀ im. (Nov. 9); Zambiza, northeast of Quito, 1 ♂ ad. (Feb. 9); Pintag, ♂ (Dec. 3).

RANGE.—The species, North America to northern South America; the race, breeds in northern North America, winters south to Ecuador.

(674a) *Cerchneis sparveria æquatorialis* (Mearns)

Falco sparverius æquatorialis MEARNS, *Auk*, 1892, p. 269 (Ecuador, "Guayaquil," error, doubtless came from the Temperate Zone).

Tinnunculus sparverius, SCL., 1858c, p. 556 (Matos); 1859a, p. 147 (Pallatanga); 1860c, p. 96 (Calacali; Puellaro); GOODF., 1902, p. 222 (Quito).

Cerchneis cinnamomina, B. & T., 1885, p. 110 (Riobamba; Chimborazo).

Tinnunculus sparverius cinnamominus, HART., 1898, p. 501 (Cayambe); MEN., 1911, p. 13 (Mozo Pichincha).

Tinnunculus cinnamominus, S. & F., 1900, p. 31 (San Bartolomé; Cañar; El Troje; La Concepcion).

Sparrow Hawk, Rhoads, 1912, p. 149 (Paramo of Pichincha).

Cerchneis cinnamominus æquatorialis, CHUBB, 1919, p. 290 (Cañar); L. & R., 1922, p. 43 (Pichincha; La Carolina; Cumbaya; Tumbaco; Pomasqui; Chaupicruz; Guapulo).

Cerchneis sparveria andina CORY, Pub. No. 183, Field Mus., 1915, p. 323 (Quito, 9,300 ft.).

Chanchan and Chiguancay; Huigra; near Chunchi; Riobamba; Cumbaya; below Chambo (Rhoads).

Chimborazo, 3♂; Urbina, 5♀; Pomasqui, 1♀; Pintag, 1♂; Yaguarcocha, 1♂, 1♀; near Quito, 1♂ (type of *andina* Cory); Pichincha, 1♂, 1♀; Guala, 1♂ (int. toward *caucæ*); Mindo, 1♂ (int. toward *caucæ*); Pallatanga, 1♂, 1♀.

RANGE.—The species, Patagonia to Canada; the race, Subtropical to Temperate Zone in Ecuador (except from Rio Chanchan southward).

Our best efforts have failed to secure a specimen of this species from the vicinity of Guayaquil or the region to the north. It apparently, therefore, is wanting in the western Tropical Zone from at least Guayaquil northward. South of Guayaquil we have taken Sparrow Hawks at both Santa Rosa and La Chonta in the coastal region, but specimens from southwestern Ecuador prove to be representatives of *cinnamomina* and cannot therefore be confused with *æquatorialis*, in which the male is ochraceous below, unspotted except sparsely on the sides. The female also is more deeply colored below than that of *cinnamomina*. The region occupied by the ochraceous-breasted type is therefore the Subtropical and Temperate Zones from the Chanchan Valley northward. Subtropical Zone specimens, particularly from the northwestern part of this zone in Ecuador, approach *caucæ* of western Colombia in their smaller size and more heavily spotted flanks, and a larger series may make it desirable to refer examples from this region to *caucæ*. The two forms, however, are so closely related and so obviously mutually representative that it seems preferable for the present to refer all Ecuadorean specimens, from the Chanchan northward, to *æquatorialis*.

Since writing¹ at some length on this group, the receipt of additional material (and the apparent absence of the species about Guayaquil) confirms my belief that the type of *æquatorialis* came from the tableland. In any event, if my suggestion to recognize but one form from north of

¹ Bull. Amer. Mus. Nat. Hist., XXXIV, 1915, p. 376.

the Chanchan be accepted, the name *æquatorialis* is applicable to it without regard to what locality in this area the type came from.

A female from La Palmira (alt. 4,000 ft.), a day's journey east of Los Baños, the only specimen I have seen from eastern Ecuador, has the crown nearly black, the ground-color of the upperparts darker, and the black bands broader than in any other specimen I have seen. It may represent an undescribed race.

Place	Measurements	Wing mm.	Tail mm.
"Ecuador" (type of <i>æquatorialis</i>)	♂	197	137
Chanchan and Chiguancay Rivers	♂	194	134
Huigra	♂	184	127
Huigra	♂	184	127
Pallatanga	♂	188	130
Riobamba	♂	189	134
Chimborazo	♂	199	136
Chimborazo	♂	206	135
Chimborazo	♂	201	145
Near Quito (type of <i>andina</i>)	♂	197	137
Pichincha	♂	198	136
Pintag	♂	191	122
Gualea	♂	189	128
Mindo	♂	188	125
Pallatanga	♀	190	132
Chunchi	♀	208	148
Ambato	♀	206	138
Urbina, Chimborazo	♀	196	135
Urbina, Chimborazo	♀	209	148
Urbina, Chimborazo	♀	200	149
Urbina, Chimborazo	♀	192	135
Urbina, Chimborazo	♀	202	138
Pichincha	♀	209	138
Pomasqui	♀	195	—

(674b) *Cerchneis sparveria peruviana* Cory

Cerchneis sparverius peruviana CORY, Field Mus. Pub., X, No. 182, 1915, p. 296 (Chachapoyas, Peru).

La Chonta, 1 ♀; Santa Rosa, 1 ♀; Casanga, 1 ♂, 3 ♀; Guainche, 1 ♀; Celica, 1 ♀; Alamor, 1 ♂, 3 ♀.

RANGE.—Northern Peru and southwestern Ecuador.

I have not seen topotypes of this form, to which Cory refers a specimen from Lima. The specimens from southwestern Ecuador, listed above, agree with a series representing the entire coast of Peru, and I

hence assume they may be referred to *peruviana*. These birds are quite unlike *æquatorialis*, in which the breast is uniform dark ochraceous, and differ from *cinnamomina* only in their smaller size. Males measure, wing 175 to 177 mm., tail 119 to 128 mm.; females, wing 181 to 188 mm.; tail 125 to 134 mm.; while topotypical specimens of *cinnamomina* measure, males, wing 182 to 191 mm.; tail 127 to 133 mm.; females, wing 195 to 198 mm.; tail 132 to 136 mm.

(679) ***Pandion haliaëtus carolinensis* (Gmel.)**

Falco carolinensis GMEL., Syst. Nat., I, 1788, p. 263 (Carolina).

Pandion haliaëtus, Tacz., 1877, p. 745 (Santa Luzia, Jan. 5).

Chone, 1 ? (Dec. 24); 1 ♂ (Dec. 29).

RANGE.—The species, nearly cosmopolitan; the race, Western Hemisphere; breeds from Mexico northward; winters south to Southern Chile.

Known in Ecuador only as a winter visitant. Our two examples agree with North American specimens. With F. C. Walcott and Lord William Percy, I observed an Osprey near the central Reloncaví fiord, east of Puerto Montt, Chile, in January, 1924.

ORDER STRIGIFORMES

FAMILY BUBONIDÆ. OWLS

(680) ***Rhinoptynx clamator clamator* (Vieill.)**

Bubo clamator VIEILL., Ois. Am. Sept., I, 1807, pl. 20, p. 52 (Cayenne, see Hellm., "Spix's Types").

Chimbo, 1 ♂.

RANGE.—Tropical Zone, Paraguay to Guatemala.

Apparently not before recorded from Ecuador. It doubtless occurs also in eastern Ecuador.

(682a) ***Asio flammeus bogotensis* Chapm.**

Asio flammeus bogotensis CHAPM., Bull. A. M. N. H., XXXIV, 1915, p. 370 (Bogotá Savanna, Col.).

Asio accipitrinus, S. & F., 1900, p. 32 (Chaupi); MEN., 1911, p. 13 (Mozo Pichincha).

Asio galapagoensis æquatorialis CHUBB, Bull. B. O. C., XXXVI, 1916, p. 46 (Pichincha, type examined); BANGS, Proc. N. E. Zool. Club, VI, 1919, p. 97 (crit.).

Asio flammeus, L. & R., 1922, p. 44 (Piganta; Atacazo; above Cotocallo; Pichincha; Corazon).

Pichincha (12,000 ft.), 1 ♂; Zambiza, northeast of Quito (7,500 ft.), 1 ♂ ("generally found on the Paramo; this is the first specimen found as low as 7,500 ft."—Söderstrom); Atacazo (12,000 ft.), 2 ♀; Corazon (10,000 to 12,000 ft.), 6 ♂, 2 ♀; Urbina, Chimborazo, 1 ♂.

RANGE.—The species, North Temperate Zone of both hemispheres, southward in North America over the highlands of Mexico and Guatemala (not recorded from Nicaragua, Costa Rica, or Panama) to the Andean Temperate, Paramo, and South Temperate Zones; the race, arid Temperate and Paramo Zones of Colombia and Ecuador and possibly also Peru, where it descends to the coast.

This race is to be distinguished from true *flammeus* as well as *flammeus brevauris* of southern South America and *flammeus sanfordi* of the Falkland Islands by its much darker coloration above. While, therefore, geographically intermediate between the North Temperate and South Temperate races, it differs more from both than they do from one another, indeed *brevauris* is barely distinguishable, if at all, from *flammeus flammeus*. Comparison of our 13 Ecuadorean specimens with the type and topotype of *bogotensis* shows, as might be expected, that they represent but one form.

683. *Asio stygius* (Wagl.)

N[ystalops] stygius WAGL., Isis, 1832, p. 221 (Brazil).

Asio stygius, L. & R., 1922, p. 43 (above Cotocallo; w. side Mojanda Mts.).

West side Pichincha, 1 ♀; Guailabamba, 1 ♂.

RANGE.—Cuba and southeastern Mexico to Argentina; in Ecuador and Colombia known only from the Temperate Zone.

(687) *Bubo virginianus nigrescens* Berl.

Bubo nigrescens BERL., P. Z. S., 1884, p. 309 (mountains of Cechce, w. Ec.); S. & F., 1900, p. 32 (Paredones; La Concepcion); L. & R., 1922, p. 43 (Cumbaya; Tumbaco).

Bubo crassirostris, SCL., 1858b, p. 451 (Cuenca).

Upper Antisana, 2 ♂; Mt. Chimborazo, 1 ♂, 2 ♀; Bestion, 1.

RANGE.—The species, Magellan to Labrador and Alaska; the race, upper arid Temperate and Paramo Zones of Ecuador.

While both at the north and at the south this species more nearly reaches the Tropical Zone than does *Asio flammeus*, its distribution, as with *flammeus*, is that of a North Temperate Zone species reaching the South Temperate Zone over a high Andean bridge. Although usually an inhabitant of forests in Ecuador the bird lives in the treeless bar-

rancas, but in spite of this fact it is the darkest of the some 16 known races of this species.

The specimen from Bestion has the buffy areas considerably paler than in those from Chimborazo.

(688a) *Pulsatrix perspicillata saturata* Ridgw.

Pulsatrix perspicillata saturata RIDGW., Bull. No. 50, U. S. N. M., VI, 1914, p. 758 (Santo Domingo, Oaxaca, Mex.).

Pulsatrix perspicillata, S. & F., 1900, p. 32 (Vinces); HART., 1902, p. 605 (San Javier).

Chone, 1 ♀; Chongon Hills, 1 ♀; Santo Domingo, 1 ♀.

RANGE.—The species, southern Brazil to Mexico; the race, western Ecuador to southern Mexico.

Six specimens from Chiriqui to Oaxaca, Mexico, differ from eight specimens from Surinam loaned me by T. E. Penard, in being larger (♀, wing 340 to 347 mm. as compared with 317 to 328 mm.), darker below, and five of the six have the underparts more or less barred. Panama and western Ecuadorean birds agree with Surinam birds in size but are nearer Central American birds in color, and none is barred below. Should bars on the underparts prove to be usually present in *saturata* and always or usually absent in specimens from Panama to western Ecuador, the latter would deserve recognition as an intermediate form between *saturata* and *perspicillata*. Two adults from Santa Marta are extreme examples of *perspicillata*.

I have seen no specimens from eastern Ecuador and cannot therefore give the characters of the bird from that region.

(689) *Pulsatrix melanonota* (Tsch.)

Noctua melanonota TSCH., Arch. für Naturg., 1844, p. 267 (Peru).

Pulsatrix fasciiventris S. & F., 1900, p. 32 (Valle de Rio Zamora).

Pulsatrix melanonota, BERL., Bull. B. O. C., XII, 1901, p. 7. Near Rio Napo (3,000 ft.), 1 ♀; below San José, 1 ♂.

RANGE.—Tropical Zone of eastern Ecuador and eastern Peru.

Our specimens agree with Tschudi's plate of this species and also with Salvadori and Festa's description of *P. fasciiventris*, which, as von Berlepsch has already stated, is doubtless a synonym of *melanonota*.

Ridgway (Bull. No. 50, U. S. Nat. Mus., VI, p. 755) ranks this species as a race of "*Pulsatrix pulsatrix*" (= *P. perspicillata*), but it is specifically distinct from that species, which is doubtless represented in eastern Ecuador by the typical form.

(695) *Otus ingens* (Salv.)

Scops ingens SALV., Bull. B. O. C., VI, 1897, p. 37 (Jima, Ec).

RANGE.—Known only from the type (examined.)

This species is similar to *O. choliba* but is considerably darker and larger. wing 206 mm.

(697) *Otus watsoni* (Cass.)

Ephialtes watsoni CASS., Proc. Acad. Nat. Sci. Phila., IV, 1848 ("South America," I propose Napo region of Ecuador).

Rio Suno, 2♂; below San José, 1♀; near Rio Napo (3,000 ft.), 1♂, 1♀; Macas Region, 1.

RANGE.—Upper Amazonia; in Ecuador known only from the Amazonian Fauna.

The Macas and San José specimens and the Napo female are in the gray, the others in the rufous phase of color. No two of six specimens of this species in our collection are exactly alike, and, aside from dichromatism, it is evidently very variable in color.

I have before expressed my agreement with von Berlepsch on the identity of *Otus watsoni* with *O. "ustus"* (Cf. Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 253).

698a. *Otus roboratus* Bangs & Noble

Otus roboratus BANGS & NOBLE, Auk, XXXV, 1918, p. 448 (Bellavista, n. w Peru).

? *Scops guatemalæ*, S. & F., 1900, p. 33 (Vinces).

RANGE.—Tropical Zone; northern Peru and western Ecuador.

Bangs and Noble, in describing their *Otus roboratus*, remark: "Undoubtedly this is the Scops Owl recorded by Salvadori and Festa from Vincennes, western Ecuador, and referred by them with much doubt to *Scops guatemalæ* Sharpe." The species is said to resemble most closely *O. cassini* Ridgw., of Vera Cruz, Mexico. The latter species is not in the museum but we have an excellent series of *O. roboratus* from the Rio Perico not far from the type-locality.

(699) *Lophotrix cristata cristata* (Daud.)

Strix cristata DAUD., Traité d'Orn., II, 1800, p. 207 (Guiana).

Near Archidona (3,500 ft.), 1♂; "Ecuador," 1?.

RANGE.—Amazonia; in Ecuador known only from the Amazonian Fauna.

These two birds are much paler throughout and the face is more extensively rufous-chestnut than any one of our specimens from western Colombia, Panama, or Nicaragua.

The species has not as yet been recorded from western Ecuador but the presence of *L. c. stricklandi* at Barbacoas, in southwestern Colombia, indicates the presence of that form in western Ecuador also.

(703) *Ciccaba albitarsus* (Scl.)

Syrnium albitarse SCL., Trans. Zoöl. Soc., IV, 1862, p. 263, pl. lx, (Bogotá); L. & R., 1922, p. 46 (Alonguinche).

Ciccaba albitarse goodfellowi CHUBB, Bull. B. O. C., XXXVI, 1916, p. 46 (north of Quito).

Piganta, 1 ♂; Pichincha (11,000 ft.), 1 ♂; upper Sumaco, 1 ♀.

RANGE.—Humid Temperate Zone, northern Ecuador to the Mérida region, Venezuela.

Our Ecuadorean specimens agree with four from Colombia (Bogotá, 2; Santa Elena, 2) and two from the Mérida region, Venezuela. I am therefore unable to detect the characters attributed to *C. a. goodfellowi*.

In nestling plumage, the body of this species is uniform buffy and is quite unlike the whitish, barred juvenal plumage of *Ciccaba albogularis*.

(704) *Ciccaba albogularis albogularis* (Cass.)

Syrnium albo-gularis CASS., Proc. Acad. Nat. Sci. Phila., IV, 1848, p. 124 ("South America"; Brabourne and Chubb substitute "Colombia"; Chapman adds "Choachi, east of Bogotá").

Syrnium albogulare, SCL., 1860c, p. 96 (above Puellaro).

Ciccaba albogularis, L. & R., 1922, p. 44 (Alonguinche; Piganta; below Verdecocha).

Alonguinche, west side Mojanda Mts., 1 ♂, 1 ♀; Piganta, 1 ♂; upper Sumaco, 2 ♂.

RANGE.—The species, humid Temperate Zone, Ecuador to the Mérida region, Venezuela; the race, northern Ecuador and Colombia.

Ecuadorean specimens represent the extreme of variation from *C. a. meridensis*, having but few or no white spots on the crown and nape, while those on the underparts are comparatively inconspicuous. The Ecuadorean bird, however, too closely resembles the Colombian ("Bogotá") race to be separated from it.

The juvenal plumage is whitish, slightly tinted with buff, and, from base of bill to base of tail, evenly and finely barred with fuscous.

(704a) *Ciccaba æquatorialis* Chapm.

Ciccaba æquatorialis CHAPM., Am. Mus. Novit., No. 31, 1922, p. 4 (east of Los Baños, Ec.).

East of Los Baños, 1 (type); Rio Sardinas, between Papallacta and Baeza, 1 ♂.

Specific Characters.—Resembling *Ciccaba albogularis* but throat not white, crown barred instead of spotted, an evident buffy nuchal collar, outer webs of scapulars buffy, primaries barred on inner webs; abdominal region whiter.

RANGE.—Subtropical or humid Temperate Zone of eastern Ecuador.

The Rio Sardinas specimen agrees with the type and confirms the characters of the species as well as the surmise that it comes from eastern Ecuador. In the pattern of coloration of the scapulars this species resembles *Otus nudipes*, but the resemblance ends there, the tarsus in *æquatorialis* being feathered as in *Ciccaba*, while the upperparts are finely barred instead of spotted with ochraceous-tawny; nor can I detect ear-tufts in the Ecuadorean bird.

(707) *Ciccaba virgata virgata* (Cass.)

Syrnium virgatum CASS., Proc. Acad. Nat. Sci. Phila., IV, 1848, p. 124 ("South America"; Brabourne and Chubb give "Colombia").

Ciccaba virgata virgata, L. & R., 1922, p. 46 (Gualea; near Rio Blanco).

Chone, 2 ♀.

RANGE.—Northern South America to southern Mexico; in Ecuador, both Colombian-Pacific and Amazonian Faunas.

The Chone specimen and three from Colombia (Rio Frio, La Frijolera, and Enconosa, near Bogotá) are in the dark phase of plumage, which resembles the light phase above but, as Ridgway has shown (Bull. No. 50, VI, p. 763), is much darker below. These birds can be matched in the color of the underparts by the darkest specimens in a series from Central America (Panama to Guatemala), but only one bird in this series is as dark above as the Colombian and Ecuadorean birds. Ridgway (*loc. cit.*) has called attention to the darker color of specimens of this Owl from Santa Marta and Darien, and it is quite possible that the South American is separable from the Central American form. Unfortunately, Cassin's type of *virgata*, which Dr. Stone has kindly sent me for examination, while said to come from "South America" agrees in color with the Central American form. The difference between South American and Central American specimens, however, is of the kind that might be occasioned by fading through exposure to light, and since Cassin's type (although now demounted) was for many years on ex-

hibition as a mounted specimen, it is impossible to say whether its resemblance to Central American birds is actual or whether it is a faded specimen of the Colombian bird.

The fact that Cassin's type is in the lighter phase of plumage while our Colombian birds are, as stated above, in the darker, makes, at the best, a comparison between them unsatisfactory. Additional South American material is needed before the relationships of the Central American and South American forms can be determined, and only when this is done can we, if ever, properly allocate Cassin's type. A single male from "near the Rio Napo, 3,000 ft." secured through Mr. Söderstrom, differs from all our other specimens of this species in having the markings of the upper surface and wing-coverts much more rufescent and the abdominal region much whiter. It apparently represents an undescribed race which, however, in so variable a group, it seems unwise to name on the basis of a single specimen.

A specimen taken at Chone, December 20, wears the nearly uniform cinnamon-buff down of the nestling plumage, which, in spite of the general resemblance of the adults, differs strikingly from the corresponding plumage of *C. albogularis* but resembles that of *C. albitarsus*.

(708) *Ciccaba huhula* (Daud.)

Strix huhula DAUD., *Traité d'Orn*, II, 1800, p. 41 (Cayenne).

Junction Zamora and Bombiscara Rivers, 1 ♀; Rio Napo (3,000 ft.) 1 ♀.

RANGE.—Tropical Zone, Amazonian Fauna.

Due allowance being made for the difference in the age of the skins, our Ecuadorean specimens agree with one from Matto Grosso. I have seen none from Cayenne. The species has not before been recorded from Ecuador.

(709) *Ciccaba nigrolineata* Scl.

Ciccaba nigrolineata SCL., P. Z. S., 1859, p. 131 (s. Mexico); S. & F., 1900, p. 33 (Rio Peripa); HART., 1902, p. 605 (Bulón).

Naranjo, 1 ♂.

RANGE.—Tropical Zone from western Ecuador and Colombia, west of the eastern Andes to southern Mexico.

Our specimen agrees in color with others from Chontales and Vizagua, Nicaragua, but is smaller (wing 255 mm.). East of the Andes this species is apparently represented by the specifically distinct *C. huhula*.

(710) *Gisella harrisi* Cass.

Gisella harrisi CASS., Proc. Acad. Nat. Sci. Phila., IV, 1848, p. 157 (S. Amer.); L. & R., 1922, p. 46 (Zambiza).

RANGE.—Known only from Ecuador to Venezuela.

Recorded by Lönnberg and Rendahl from Zambiza, a native collecting station in the arid Temperate Zone about 10 miles northeast of Quito. We have no Ecuadorean specimens.

(717) *Speotyto cunicularia nanodes* Berl. & Stolz.

Speotyto cunicularia nanodes BERL. & STOLZ., P. Z. S., 1892, p. 388 (Lima, Peru). *Speotyto cunicularia*, HART., 1898, p. 502 (Ibarra); S. & F., 1900, p. 34 (Ibarra and La Concepcion specimens only); L. & R., 1922, p. 46 (San Antonio; Inga road to Zambiza; Chaupicruz).

Pholeoptynx cunicularia, SCL., 1860c, p. 96 (Calacali); GOODF., 1902, p. 221 ("quebradas" near Quito).

Near Quito, 5 ♂, 1 ♀, 2 ?.

RANGE.—In Ecuador, arid Temperate Zone, reaching the coast in Peru.

Comparative measurements of Ecuadorean and Peruvian Burrowing Owls:

		Wing mm.	Tail mm.
Ibarra, Ec.	♂	163	74
Quito, Ec.	(4) ♂	169-179	82-86
Ibarra, Ec.	♀	169	83
Quito, Ec.	♀	173	82
Lima, Peru	♂	165.5	73
Cajabamba	♂	164	77
Cajabamba	♂	161.5	74
Lima, Peru	♀	159.5	74
Trujillo	♀	160	71

It is remarkable that Burrowing Owls from the Temperate Zone in Ecuador and northern Peru differ from *nanodes* of the coast of central Peru only in being slightly larger. Examination of the collections of the British and American museums indicates that the distribution of the four forms of *Speotyto cunicularia* known from Peru and Ecuador is as follows:

1. *Speotyto cunicularia juninensis*. Restricted to the tableland of Peru from the Titicaca Basin at least to Lake Junin. A large yellowish form which has presumably entered Peru through Bolivia from Argentina.

2. *Speotyto cunicularia nanodes*. Inhabits the coast of Peru north to Trujillo, whence its range extends northeast to Cajabamba and northward through Ecuador at least to Ibarra north of Quito. I have seen specimens from numerous localities on the coast, Cajabamba, Tambo, Caterindos Valley and Rio Chira, Peru; Guishapa, Prov. Oña, Riobamba, Sical, the Quito Region and Ibarra, Ecuador.

3. *Speotyto cunicularia intermedia*. Occupies the coast region from Pacasmayo and Eten northward to a point as yet undetermined, but doubtless south of Payta, since Bangs refers specimens from Sullana, east of that point, to *punensis*. The relationships of this form are with the last-named race rather than with *nanodes*.

4. *Speotyto cunicularia punensis*. The distribution of this species is given below.

(717a) *Speotyto cunicularia punensis* Chapm.

Speotyto cunicularia punensis CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 318 (Puna Is., Ec.).

Speotyto cunicularia, S. & F., 1900, p. 34 (Puntilla de Santa Elena).

Puná Is., 3 ♂, 2 ♀; Colonche, 2 ♂, 5 ♀.

RANGE.—Equatorial Arid Fauna.

This species doubtless occurs in favorable localities in the arid coastal region from Bahia de Caraquez southward into northern Peru, whence Bangs and Noble record it from Sullana, east of Payta. Farther south it is replaced by *S. c. intermedia* Cory, described from Pacasmayo, beyond which *nanodes* Berl. & Stolz. occurs, as has been shown under that form.

The receipt of additional material confirms the validity of this race, which is apparently the palest known form of the species. Specimens from Colonche are somewhat more heavily barred below than those from Puná Island.

(719a) *Glaucidium pumilum griseiceps* Sharpe

Glaucidium griseiceps SHARPE, Ibis, 1875, p. 41, pl. ii, fig. 2 (Guatemala); L. & R., 1922, p. 47 (Guala, 5,000 to 8,000 ft., 2 ♂, 2 ♀).

RANGE.—The species, Brazil; western Panama to Guatemala; the race, Panama to Guatemala.

We have no Ecuadorean specimens of this form which heretofore has not been recorded from south of western Panama. One of Lönnberg and Rendahl's specimens is in the gray, the others in the rufous phase of plumage; of the latter, they remark that they "very much resemble the corresponding phase of *G. jardinii*." The occurrence of the latter near Guala is indicated by the two specimens in our collection recorded beyond which should be compared with those of Lönnberg and Rendahl.

(721a) *Glaucidium brasilianum brasilianum* (Gmel.)

Strix brasiliانا GMEL., Syst. Nat., I, 1788, p. 289 (Brazil).

Glaucidium infuscatum, SCL., 1860d, p. 289 (Babahoyo).

Glaucidium ferrugineum, SCL., 1860d, p. 289 (Babahoyo).

Glaucidium ferox, B. & T., 1885, p. 574 (Yaguachi); 1885, p. 108 (Yaguachi); S. & F., 1900, p. 33 (El Troje; Babahoyo; Vinces).

Glaucidium phalaenoides, Tacz., 1877, p. 329 (Tumbez).

Chone, 5♂, 1♀; Bahía de Caraquez, 1♂; Manta, 1♂, 1♀?; Daule, 3♂, 3♀; Chongoncito, 1♂, 1♀; Santa Rosa, 5♀; Portovelo, 1♀; Alamor, 1♂; Guainche, 1♂; Loja, 1♀; Casanga Valley, 1♂.

RANGE.—Tropical Zone: the species, Argentina to United State; the race, Paraguay to Colombia.

A common species in the more arid portions of the Tropical Zone of western Ecuador, but doubtless less numerous in the humid forests of Amazonian Ecuador, from which region, indeed, it has not been recorded. Our series of 27 specimens ranges in color from birds with rich tawny orange upperparts and essentially unbarred tail, to others in which the upperparts are grayish olive-brown, the tail blackish with broken white bars. This wide range of variation and an inadequate series of true *brasilianum* make it impossible for me to determine whether the Ecuadorean birds exhibit any distinctive racial characters. They appear, however, to be more narrowly streaked below and to have the crown more heavily marked and with roundish or guttate spots rather than shaft-streaks, than in either Brazilian or Trinidad or Caribbean coast birds. A specimen from Loja, however, can be exactly matched by one from Ollantaytambo, southern Peru, and another from Ceará, Brazil, has the crown as heavily spotted as in my Ecuadorean bird; while other specimens from Ecuador agree with one from Boa Vista, Maranhão, Brazil. In short, individual variation is obviously so much greater than racial variation that, so far as my material goes, the latter is largely obscured.

(722) *Glaucidium jardini* (Bonap.)

Phalaenopsis jardini BONAP., Compt. Rend., XLI, 1855, p. 654 (Andes of Quito).

Glaucidium jardinei, B. & T., 1885, p. 109 (San Rafael); S. & F., 1900, p. 33 (La Concepcion); MEN., 1911, p. 14 (Pachijal; Alaspungo; Chorillos, Nanegal); GOODF., 1902, p. 221 ("quebradas" near Quito).

Glaucidium jardinii, L. & R., 1922, p. 47 (Pichincha; Piganta; Nono; Verdecocha; above Chillo; Alonguinche; near Baeza). "Gualea," 2; Nabon, 1♀ juv. (Jan. 9); Papallacta, 1♂ rufous phase; above Baeza, 1♂, 1♀; upper Sumaco, 3♂.

RANGE.—Humid Temperate Zone, from Peru to Costa Rica; in Ecuador, both eastern and western Andes.

The "Gualea" specimens are native collected skins and doubtless came from above that locality. In one the crown is thickly spotted, in the other it is immaculate. Possibly the latter condition is indicative of

immaturity since a juvenal from Nabon is unspotted above (except for the nuchal band). The Papallactan specimen is very deeply colored. Both red and gray phases are represented.

(725) *Tyto alba contempta* (Hart.)

Strix flammea contempta HART., Nov. Zoöl., V, 1898, p. 500 (Cayambe, Ec.).
Strix punctatissima, SCL., 1860b, p. 82 (Quito); 1860c, p. 96 (Puellaró).
Strix perlata, S. & F., 1900, p. 34 (Sigsig; Cañar).
Strix flammea, GOODF., 1902, p. 221 (Quito).
Tyto perlata contempta, L. & R., 1922, p. 48 (Quito; Zambiza; Chaupicruz; Pichincha; Sangolqui, Chillo Valley).
Chone, 2 ♀; Puna Is., 1 ♂, 1 ♀; Mt. Pichincha, 2 ♂; Mt. Chimborazo, 2 ♀.
RANGE.—In Ecuador, Tropical to Temperate Zones.

Doubtless found in eastern as well as western Ecuador, though we have specimens only from the Pacific side. In general these resemble *T. p. guatemalæ*. Four are in the buffy and one in the white phase, while two are intermediate. Specimens from the Temperate are larger than those from the Tropical Zone, as the appended measurements show, and consequently are nearer *guatemalæ*.

Locality	Measurements	Phase	Wing mm.	Tail mm.
Chone	♀	Intermediate	298	117
Chone	♀	Buff	295	115
Puna Is.	♀	Intermediate	270	112
Puna Is.	♂	Buff	265	112
Mt. Chimborazo	♀	Buff	312	125
Mt. Chimborazo	♀	Buff	320	130
Mt. Pichincha	♂	White	312	119

ORDER PSITTACIFORMES

FAMILY PSITTACIDÆ. MACAWS, PARROTS, PARRAKEETS

(732) *Ara ararauna* (Linn.)

Psittacus ararauna LINN., Syst. Nat., I, 1758, p. 96 ("America meridionali"; Bourne and Chubb substitute "Brazil").
Ara ararauna, S. & F., 1900, p. 24 (Gualaquiza; Río Peripa); GOODF., 1902, p. 219 (Napo); L. & R., 1922, p. 49 (below Archidona).
RANGE.—Tropical Zone of South America; both western and eastern Ecuador.
We have no specimens from Ecuador.

(734) *Ara macao* (Linn.)

Psittacus macao LINN., Syst. Nat., I, 1758, p. 96 ("America meridionali;" Brabourne and Chubb "take Pernambuco"); SALVAD., Cat. Bds. B. M., XX, 1891, p. 156 (Sarayacu).

RANGE.—Tropical Zone, Amazonia to southern Mexico; not recorded from western Ecuador.

We have no specimens from Ecuador.

(735) *Ara chloroptera* Gray

Ara chloropterus GRAY, List Psitt. Br. Mus., 1859, p. 26 ("South America"; Brabourne and Chubb "take Guiana").

Ara chloroptera, SALVAD., Cat. Bds. B. M., XX, 1891, p. 157 (Sarayacu).

Rio Suno, 1 ♂, 1 ♀; below San José, 1 ♀.

RANGE.—Tropical Zone, Amazonia to Guatemala; not recorded from western Ecuador.

(736) *Ara militaris militaris* (Linn.)

Psittacus militaris LINN., Syst. Nat., 1766, p. 139 (no locality; Brabourne and Chubb "suggest Colombia").

Ara militaris, SCL., 1858, p. 76 (Napo); L. & R., 1922, p. 49 (Rio Napo).

RANGE.—Tropical Zone, northwestern Colombia; southeast of the Andes to Bolivia, where represented by *A. m. boliviana*; unknown from Panama to Nicaragua but represented by a slightly larger form (*A. m. mexicanus*) in Guatemala and Mexico.

In western Ecuador this species is represented by the closely allied but apparently specifically distinct *A. ambigua guayaquilensis*. We have no Ecuadorean specimens, but a molting bird from Perico, Rio Chinchipe, northern Peru, is apparently not separable from Colombian specimens. I have seen no examples from Bolivia (*A. m. boliviana* Rchw.).

(737a) *Ara ambigua guayaquilensis* Chapm.

Ara ambigua guayaquilensis CHAPM., Amer. Mus. Novit., No. 205, 1925, p. 2 (Cerro de Bajo Verde, Chongon Hills, Ec.).

Ara ambigua, SALVAD., Cat. Bds. B. M., XX, 1891, p. 160 (Balzar; Guayaquil).

Chongon Hills, 1 ♀ (type).

Subspecific Characters.—Resembling *Ara ambigua ambigua* (Bechst.) of northwestern Colombia to Nicaragua, but with a much smaller bill, the lower surfaces of the rectrices (except central pair) and remiges, and the longer lower wing-coverts greenish yellow instead of golden yellow; greener even than in *Ara militaris*.

RANGE.—Tropical Zone: the species, Nicaragua to western Colombia; the race, western Ecuador (? and southwestern Colombia).

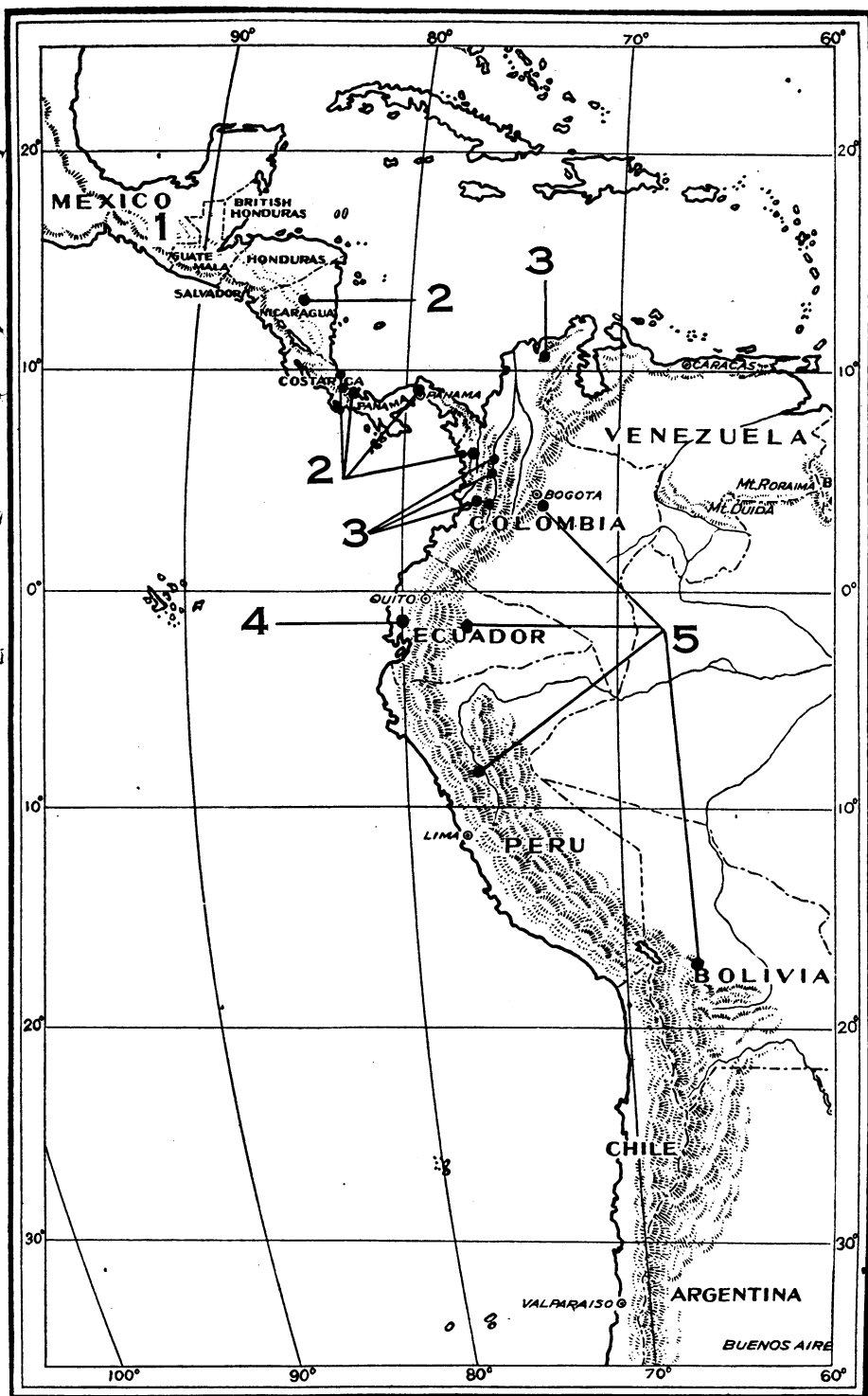


FIG. 21. Distribution of *Ara militaris* and *A. ambigua*, two very closely related but apparently non-intergrading forms of which the range of the latter widely divides that of the former.

- 1, 3, and 5. *Ara militaris* 2. *Ara ambigua ambigua*
4. *Ara ambigua guayaquilensis*

This bird was not uncommon in the Chongon Hills near Guayaquil, but was usually seen or heard passing, and but one opportunity was offered to secure a specimen.

Ara militaris ranges from Bolivia to Mexico. In South America it is found only east of the Andes, except in Colombia, whence we have specimens from Santa Marta, Salencio on the eastern slope of the west Andes near Cartago, from Los Cisneros at the western base of the west Andes, east of Buenaventura, and from the Rio Cauca and Rio Oscuro in the Cali region. It is recorded from Antioquia by Sclater and Salvin.

Between northwestern Colombia and Guatemala *Ara militaris* is unknown, and this region, that is, Panama, Costa Rica, and Nicaragua, is occupied by *Ara ambigua*. The latter, however, was taken by the Michler Expedition on the Rio Nercua, a tributary of the Rio Truando which enters the lower Atrato from the west, and, as we have seen, it is found in western Ecuador. Unless, therefore, there is a hiatus in the range of *ambigua* between Nercua in northwestern Colombia and western Ecuador, both *ambigua* and *militaris* are found in Colombia west of the western Andes, that is, in the Colombian-Pacific Fauna.

These are the facts in the case so far as I am familiar with them, but whether *ambigua* and *militaris* are related specifically or subspecifically I am unable to say.

(739a) *Ara severa castaneifrons* Lafr.

Ara castaneifrons LAFR., Rev. Zoöl., 1847, p. 66 (Bolivia); see Bangs & Penard, Bull. M. C. Z., LXII, 1918, p. 47.

Ara severa, B. & T.; 1883, p. 573 (Chimbo); S. & F., 1900, p. 24 (Rio Peripa); GOODF., 1902, p. 219 (Santo Domingo; Napo).

Naranjo, 2♂, 2♀; El Destino, 1♀; Rio Suno, 1♂.

RANGE.—The species, Tropical Zone of South America; the race, western part of this region, Bolivia to Colombia, including western as well as eastern Ecuador.

Bangs and Penard accept *severa severa* (Linn.) as the name for the form of lower Amazonia and the Guianas, which they state is smaller and has more naked cheeks than the race ranging from Bolivia to Colombia. We have no material from either Bolivia or Amazonia, but our Ecuadorean birds agree with Colombian ones, including specimens from east of the Andes.

(743) *Ara manilata* (Bodd.)

Psittacus manilata BODD., Tabl. Pl. Enl., 1783, p. 52 (Cayenne).

Ara macaruvanna, SALVAD., Cat. Bds. B. M., XX, 1891, p. 165 (Sarayacu).

RANGE.—Tropical Zone, Amazonia.

In Ecuador known only from Buckley's specimens from Sarayacu.

(755) *Aratinga weddelli* (Deville)

Conurus weddellii DEVILLE, Rev. et Mag. de Zoöl., 1851, p. 209 (Pebas, Haut-Amazone).

Conurus weddelli, SCL., 1858, p. 76 (Napo); S. & F., 1900, p. 24 (Valle del Rio Santiago).

RANGE.—Tropical Zone; Amazonia.

In Ecuador known only from the Amazonian Fauna.

(757) *Aratinga rubrolarvata* (Mass. & Souancé)

Conurus rubrolarvatus MASS. & SOUANCÉ, Rev. et Mag. de Zoöl., 1854, p. 71 ("Habite Guayaquil"); S. & F., 1900, p. 24 (Vinces; Peripa); L. & R., 1922, p. 49 (Guayaquil; Santo Domingo).

Conurus erythrogenys, SCL., 1859a, p. 146 (Pallatanga); 1860a, p. 71 (Pallatanga); 1860d, p. 287 (Babahoyo); TACZ., 1877, p. 329 (Tumbez); B. & T., 1883, p. 573 (Chimbo; Guayaquil).

Pagma Forest near Chunchi (Rhoads).

Chone, 1 ♂; Daule, 2 ♀; Duran, 1 ♂, 1 ♀; Portovelo, 3 ♂, 1 ♀; Zaruma, 1 ♀; Salvias, 1 ♂; Casanga Valley, 1 ♂, 1 ♀; Punta Santa Ana, 2 ♂, 1 ♀; Guainche, 1 ♂, 1 ♀; Lunamá.

RANGE.—Tropical Zone, Equatorial Arid Fauna.

A common species in southwestern Ecuador and northwestern Peru. In adults from the more southern part of this area the red of the cheeks is connected across the chin, suggesting an approach toward *A. callogenys*, of which *rubrolarvata* may be the west coast representative.

Immature birds show no red markings except on the under wing-coverts, which are apparently never without at least a trace of this color. Later, a narrow red frontal line is developed.

(758) *Aratinga frontata* (Cab.)

Conurus frontatus CAB., in Tsch. Faun. Peru, 1846, p. 272 (Lima); SALVAD., Cat. Bds. B. M., XX, 1891, p. 183 (San José; San Lucas).

San Lucas, 1 (Villagomez ex. Brit. Mus.); Lunamá, 1 ♂.

RANGE.—Tropical Zone, Marañon Valley; western Ecuador and western Peru from San José to Lima.

This is evidently a rare species, our rather intensive collecting throughout its recorded range having yielded but one specimen. This was taken at Lunamá (alt. 4,600 ft.) in the Subtropical Zone of southwestern Ecuador. A Villagomez (*ex* Buckley) specimen is labelled "San Lucas," a regional locality of no definite zonal value. While having the forehead with nearly as much red as in the San Lucas bird, the Lunamá

example has no red whatever on the wing, except for two red feathers on the humerus, while the red on the tibiæ is restricted to one feather, and the outer margins of all the primaries and primary coverts are wholly green, not tinged with blue. Whether these differences are due to age or whether they have a racial significance cannot be determined from the material at hand. It is significant, however, that in the color of the wings the Lunamá specimen agrees exactly with *A. mitrata mitrata*, and it is to this extent an intermediate between that species and *frontata*.

(760a) *Aratinga callogenyus* (Salvad.)

Conurus callogenyus SALVAD., Cat. Bds. B. M., XX, 1891, p. 188 (Sarayacu, Ec.); Ibis, 1906, p. 454 (crit.); S. & F., 1900, p. 25 (Valle del Rio Santiago; San José).

Conurus leucophthalmus, HELLM., Nov. Zoöl., XIV, 1907, pl. 85 (crit.).

Zamora, 1 ♂ ad., 1 ♀ im.; Rio Suno, 1 ♂ im., 1 ♀ im.; below San José, 2 ♂ im., 1 ♀.

RANGE.—Tropical Zone; eastern Ecuador and northeastern Peru.

The adult male has the throat broadly, and cheeks up to the eyespace, solid red (slightly lighter than in the crown of *A. rubrolarvata*) except for a few green feathers at the corner of the mouth. The crown is green with two red feathers on the forehead and several on the nape, above the right and behind the left eye. The bend of the wing and lesser under wing-coverts are solid red (like the throat) up to the body (more extensively, therefore, than in *leucophthalma*), the greater wing-coverts are yellow as in *leucophthalma*. The immature bird from Zamora has no red on any part of the body, but the bend of the wing and smaller under wing-coverts are slightly stained with red, the longer under wing-coverts being yellowish olive. It is, therefore, like immature specimens of *leucophthalma* but is darker green than any of our 22 specimens of that species, agreeing in this respect with the adult. The birds measure: ♂ ad., wing 179 mm., tail 161 mm.; ♀ im., wing 178 mm., tail 157 mm. The Rio Suno birds both have red feathers about the head. In the female, the lower wing-coverts are midway in color between that of the two Zamora birds; in the male, they are like that of the adult from Zamora. In my opinion, these birds unquestionably represent the same species. If I had only the immature birds I should refer them to *leucophthalma* with a comment on their darker color; but the adult is certainly not that species and I assume, therefore, that it is the first fully mature example of *callogenyus* to be recorded. In view of the marked development of red on the throat, the fact, above stated, that north Peruvian specimens of *rubrolarvata* have more red on the throat than those from Ecuador, is of possible significance.



1. PYRRHURA MELANURA PACIFICA CHAPM.
2. PYRRHURA ALBIPECTUS CHAPM.

(770) *Leptosittaca branickii* Berl. & Stolz.

Leptosittaca branickii BERL. & STOLZ., Ibis, 1894, p. 402, pl. xi (Maraynioc, Peru). Taraguacocha, Zaruma-Taraguro trail, Cord. de Chilla, 2♂.

RANGE.—Humid Temperate Zone; Maraynioc, Peru, to southern Ecuador.

A species of the humid Temperate Zone which has not before been recorded from Ecuador. Our specimens agree with one from the type-locality.

(771) *Ognorhynchus icterotis* (Mass. & Souancé)

Conurus icterotis MASS. & SOUANCÉ, Rev. et Mag. de Zoöl., 1854, p. 71 (Ocaña, New Granada).

Gnathosittaca icterotis, SALVAD., Cat. Bds. B. M., XX, 1891, p. 208 (Intag-Buckley).

Ognorhynchus icterotis, L. & R., 1922, p. 49 (Piganta, w. side of Mojanda Mts.).

RANGE.—Subtropical Zone, northern Ecuador and Colombia.

We have only Colombian specimens.

(774a) *Pyrrhura albipectus* Chapm. (Plate XXV)

Pyrrhura albipectus CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 319 (Zamora, Prov. Loja, Ec.).

Zamora, 2 ♀; Zamora ? (label lost), 1 ?.

RANGE.—Known only from the type-locality.

Specific Characters.—Differing from any other known species of *Pyrrhura* in having the throat and breast buffy white without or with but slight indication (in immature specimens only ?) of terminal bars, and in other characters.

No additional specimens of this strongly marked species have been secured.

(787) *Pyrrhura melanura souancei* (Verr.)

Microsittace souancei VERR., Rev. et Mag. de Zoöl., 1858, p. 437, pl. 12 (no locality = "Rio Napo" in Cat. Bds. B. M., XX, 1891, p. 224).

Pyrrhura souancei, GOODF., 1902, p. 219 (upper Napo).

Conurus souancei, B. & T., 1885, p. 108 (Mapoto).

Sarayacu, 1; Huilca, 1.

RANGE.—Subtropical Zone, eastern Ecuador.

This species is doubtless represented in western Ecuador by *P. m. pacifica*, though the latter has as yet been recorded only from Buenavista, Nariño, southwestern Colombia.

Since preparing my report on our Colombian collections, I have examined the type and topotypes of *souancei* in the British Museum and I have before me a specimen from Sarayacu which has been compared with those birds.

Comparison of this specimen with six examples of *melanura* (Cunucunuma River, upper Orinoco, 5; Pebas, Peru, 1) leads to the conclusion that *souancei* is a race of that form distinguished only by slightly wider margins to the feathers of the breast and sides of the neck (those on the breast being more buffy) and the wider green margins on the rectrices. The primary coverts are more orange terminally in the Orinoco specimens, but in a Pebas specimen this character is reduced to a minimum and this bird further approaches *souancei* in having somewhat more green in the tail than have the Orinoco birds.

It thus appears that *pacifica* is more nearly related to *souancei* than to *melanura*. Like *souancei* it has no orange in the primary coverts; the forehead, however, is greener, the breast bands narrower and more vinous, and the tail, in our three Buenavista specimens, has less green than in the Sarayacu bird. A specimen from Huilca, near Macas, has the head greener, the margins to the feathers of the breast paler and narrower than in the Sarayacu specimen. The tail is only half grown but it evidently would have had less green than in the specimen from Sarayacu. These differences, however, are not of specific value, and since the two specimens come from the same region, I presume that their differences are due to individual rather than racial variation.

Three examples from La Candela at the head of the Magdalena Valley, provisionally referred to *souancei*,¹ are clearly not that form but differ from it exactly as *berlepschi* is said to do. This last-named race was described from eastern Peru, and its occurrence in Colombia would indicate its specific distinctness from *souancei*.

(806) *Psittacula caelestis* (Less.)

Agapornis caelestis LESS., Echo du Monde Savant, 1844, p. 2 (Guayaquil, Ec.).

Psittacula caelestis, SCL., 1860d, p. 287 (Babahoyo); Tacz., 1877, pp. 329, 753 (Tumbez); B. & T., 1883, p. 574 (Guayaquil); S. & F., 1900, p. 25 (Savana de Guayaquil; Vines; Balzar; Puntilla de Santa Elena); GOODF., 1902, p. 220 (Manta).

Psittacula lucida RIDGW., Proc. U. S. N. M., X, 1887, p. 358 (type in Mus. Comp. Zool., examined).

Bahia de Caraques, 1 ♂; Manta, 3 ♂, 2 ♀; Chone, 2 ♂, 6 ♀; Santa Elena, 3 ♂, 3 ♀; Guayaquil, 1 ♂ ?, 1 ♀; Daule, 1 ♂, 1 ♀; Duran, 3 ♂; Puna Is., 1 ♂ ?, 1 ♀; Santa Rosa, 1 ♂, 3 ♀; Portovelo, 1 ♂; Casanga Valley, 1 ♂, 1 ♀; Rio Pindo, 1 ♀; Alamor, 3 ♂; Celica, 1 ♀; Guainche, 1 ♀; Lunamá, 2 ♂.

RANGE.—Tropical Zone, Equatorial Arid Fauna from Bahia de Caraques south to Trujillo, Peru, and east in Ecuador to Portovelo and the Casanga Valley.

¹ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 259.

An abundant inhabitant of scrubby and second growths. Fully adult males have the outer primary much more deeply incised at the tip, the back and sides decidedly browner than in younger birds which resemble them in other respects including the intensity and extent of the blue marking. Comparison with Ridgway's type of *P. c. lucida* shows that it is based on a fully adult specimen of *cælestis* in which the brown of the back, scapulars, and sides is as highly developed as in any other specimen in our series.

Specimens from the Casanga Valley east of the coast range and from the vicinity of Alamor are slightly larger and darker than those from the coast of Ecuador, but these differences may be in part seasonal since practically the entire range of variation is covered by our large Peruvian series (Tumbez to Trujillo). None of our specimens shows an approach toward the very different *P. xanthops* of the Marañon Valley, of which, apparently, *cælestis* is the Pacific coast representative.

(811) ***Psittacula sclateri* G. R. Gray**

Psittacula sclateri G. R. GRAY, List. Psitt. Br. Mus., 1859, p. 266, (Rio Javari); SALVAD., Cat. Bds. B. M., XX, 1891, p. 244 (Sarayacu).

? *Psittacula passerina*, SCL., 1854, p. 115 (Quijos).

Zamora, 1 ♀; below San José, 2 ♂, 1 ♀.

RANGE.—Tropical Zone, eastern Peru to eastern Colombia.

A male and two females, labeled Sarayacu, Ec., in the British Museum, agree with skins from Cosnipata, Peru.

(823) ***Brotogeris virescens* (Gmel.)**

Psittacus virescens GMEL., Syst. Nat., I, 1788, p. 326 ("Habitat in Cayenna").

Brotogerys virescens, GOODF., 1902, p. 220 (lower Napo).

RANGE.—Tropical Zone, Amazonia.

I have seen no Ecuadorean example of this species.

(824) ***Brotogeris pyrrhopterus* (Lath.)**

Psittacus pyrrhopterus LATH., Ind. Orn. Suppl., II, 1802, p. xxii ("Habitat in Brasilia" [error, I suggest Guayaquil, Ec.]).

Brotogerys pyrrhopterus, SCL., 1860d, p. 287 (Babahoyo; Guayaquil); TACZ., 1877, p. 329 (Lechugal); *ibid.*, p. 333 (Palmas); B. & T., 1883, p. 573 (Guayaquil); 1885, p. 109 (Yaguachi); S. & F., 1900, p. 25 (Playas; Rio Peripa).

Chone, 2 ♂, 1 ♀; Chongoncito, 1 ♂; Daule, 5 ♂, 4 ♀; Duran, 1 ♂, 3 ♀; Guayaquil, 1 ♂; Santa Rosa, 1 ♂, 2 ♀; Rio Pindo, 1 ♂, 1 ♀.

RANGE.—Tropical Zone, Equatorial Arid Fauna from at least Manaví south to northwestern Peru (Milagros, Piura).

This common, strongly marked species has no known obvious representative elsewhere.

(825) *Brotogeris jugularis jugularis* (P. L. S. Müll.)

Psittacus jugularis P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 801 ("America," Brabourne and Chubb give "Colombia," Chapman adds, Bonda).

Conurus jugularis, SCL., 1858a, p. 76 (Napo).

Brotogerys jugularis, B. & T., 1885, p. 109 (Canelos); GOODF., 1902, p. 220 (upper Napo).

RANGE.—Tropical Zone; Venezuela to eastern Ecuador and Mexico.

We have no specimens from Ecuador. It is possible that the Ecuadorean form may be *B. j. apurensis* Delacour.

(826) *Brotogeris devillei* Salvad.

Brotogeris devillei SALVAD., Cat. Bds. B. M., XX, 1891, p. 261 ("River Amazons").

Brotogerys devillei, SALVAD., Cat. Bds. B. M. XX, 1891 (Sarayacu); MEN., 1911, p. 14 (upper Napo).

Rio Suno, 1 ♂, 1 ♀.

RANGE.—Tropical Zone; upper Amazonia.

(831) *Brotogeris sanctæthomæ* (P. L. S. Müll.)

Psittacus sanctæthomæ P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 81 (Brazilian Amazons).

Brotogerys tui, GOODF., 1902, p. 220 (Lower Napo).

Napo, 1.

RANGE.—Tropical Zone, western Amazonia; unknown from western Ecuador.

(834) *Amazona farinosa inornata* (Salvad.)

Chrysotis inornata SALVAD., Cat. Bds. B. M., XX, 1891, p. 281 (Veragua); p. 282 (Sarayacu); S. & F., 1900, p. 25 (Valle del Rio Santiago; Rio Peripa).

Amazona inornata, MEN., 1911, p. 14 (Santo Domingo).

Amazona (farinosa vel A.) inornata, L. & R., 1922, p. 49 (near Gualea).

Below San José, 2 ♂; Rio Suno, 1 ♂, 1 ♀; east of Baños, 1.

RANGE.—Tropical Zone; the species, eastern Brazil to Central America; the race, Brazil and Peru to western Panama, western and eastern Ecuador.

Specimens from eastern Ecuador are larger than those from Panama and probably are separable, but I lack sufficient material from other parts of the interior of South America to determine whether this variation is constant. Lönnberg and Rendahl record a specimen from near Gualea with a wing measurement of 237 mm., indicating that the western Ecuadorean bird, as might be expected, agrees with the Panaman race.

<i>Measurements</i>	<i>Wing mm.</i>	<i>Tail mm.</i>
Below San José, e. Ec. ♂	254	146
Below San José, e. Ec. ♂	255	153
Rio Suno, e. Ec. ♂	266	148
East of Baños, e. Ec. ?	266	146
Eastern Brazil ?	253	143
Gatun, Pan. ♂	243	137
Rio Tuyra, Pan. ♂	246	129
Rio Tuyra, Pan. ♂	235	130
Alto Bonito, Col. ♂	240	140
Barrigon, Rio Meta, Col. ♀	247	145
Tacarcuna, Pan. ♀	244	141
Tuyra, Pan. ♀	230	135
Chocó, Col. ♀	222	126

(835) *Amazona mercenaria* (Tsch.)

Psittacus mercenarius TSCH., Wieg. Arch. für Naturg., I, 1844, p. 303 (Peru).
Chrysotis mercenaria, SCL., 1858a, p. 75 (Napo); HART., 1898, p. 500 (Paramba);
 S. & F., 1900, p. 25 (Valle de Mendez); L. & R., 1922, p. 49 (below Gualea; below
 Mindo; sometimes at Piganta; common about Intac, 3,000 to 4,000 ft.).

Baeza, 1 ♂, 2 ♀; below Oyacachi, 1 ♀.

RANGE.—Subtropical Zone; Peru to Colombia.

(836) *Amazona amazonica* (Linn.)

Psittacus amazonicus LINN., Syst. Nat., I, 1766, p. 147 (Surinam).

Chrysotis amazonica, SCL., 1858a, p. 75 (Napo); S. & F., 1900, p. 25 (Valle del Rio
 Santiago).

RANGE.—Tropical Zone; Peru to Colombia and Guiana; eastern Ecuador.

We have no specimens from Ecuador.

(841) *Amazona ochrocephala ochrocephala* (Gmel.)

Psittacus ochrocephalus GMEL., Syst. Nat., I, 1788, p. 339 ("America Australi").

Chrysotis ochrocephala, B. & T., 1885, p. 109 (Naranchito); SALVAD., Cat. Bds.
 B. M., XX, 1891, p. 291 (Sarayacu; Balzar).

Amazona ochrocephala, L. & R., 1922, p. 49 (near Archidona).

RANGE.—Tropical Zone; the species, Peru to Trinidad and Panama; the race, the same, excluding Colombia west of the Andes and Panama.

We have no specimens from Ecuador. It is probable that the reference to a specimen from Balzar should be placed under *panamensis*.

(848) *Amazona lilacina* Less.

Amazona lilacina LESS., Echo du Monde Savant, 1844, p. 394 (Guayaquil).

Chrysotis sp., B. & T., 1885, pp. 109, 114, 115, 121 (Naranchito, w. Ec.).

Chrysotis lilacina, SALVAD., Cat. Bds. B. M., XX, 1891, p. 301, pl. VII, fig. 1 (Balzar).

RANGE.—Tropical Zone; western Ecuador.

We have no specimens.

(856) *Graydidascalus brachyurus* (Temm. & Kuhl)

Psittacus brachyurus TEMM. & KUHLE, in Kuhl's Consp. Psitt., 1820, p. 72 ("Cajana").

Pachynus brachyurus, GOODF., 1902, p. 219 (Rio Coca).

RANGE.—Tropical Zone; Amazonia from the Rio Jamundá to Ecuador

We have no specimens from Ecuador.

(857) *Pionus menstruus* (Linn.)

Psittacus menstruus LINN., Syst. Nat., I, 1766, p. 148 (Surinam).

Pionus menstruus, SCL., 1858b, p. 460 (Zamora); 1860d, p. 287 (Babahoyo); HART., 1898, p. 500 (Cachaví); S. & F., 1900, p. 26 (Gualaquiza; Babahoyo; Rio Peripa); GOODF., 1902, p. 219 (Rio Napo).

Esmeraldas, 4♂; Daule, 1♂; Naranjo, 1♀; Santa Rosa, 3♂; Rio Suno, 3♂, 3♀.

RANGE.—Tropical Zone, from northern Argentina to Costa Rica; both western and eastern Ecuador.

A common, stable, wide-ranging species.

(861) *Pionus corallinus corallinus* Bonap.

Pionus corallinus BONAP., Rev. et Mag. de Zoöl., 1854, p. 148 ("America meridionali"; Brab. & Chubb give "Colombia," I amend to eastern Colombia); B. & T., 1885, p. 109 (Mapoto).

Baeza, 1♂, 1♀; lower Sumaco, 1♂, 1♀; Macas region, 1. Peru: Chaupe (6,100 ft.), northeast Huancabamba, 4♂, 1♀.

RANGE.—Subtropical Zone: the species, Bolivia (?) to Colombia; the race, the same, except western Ecuador (and western Colombia ?).

(861a) *Pionus corallinus mindoensis* Chapm.

Pionus corallinus mindoensis CHAPM., Amer. Mus. Novit., No. 187, 1925, p. 1 (Mindo, Ec.).

Pionus corallinus, SCL., 1859a, p. 147 (Pallatanga); B. & T., 1884, p. 309 (Pedregal); GOODF., 1902, p. 219 (Guanacillo); MEN., 1911, p. 15 (Gualea); L. & R., 1922, p. 50 (near Gualea; below Mindo).

Gualea, 2; Mindo, 1 ♀.

Subspecific Characters.—Similar to *Pionus corallinus corallinus* Bonap. of eastern Ecuador, but color throughout a more yellow-green (oil-green rather than cedar-green of Ridgway); the blue margins of the top and sides of the head averaging narrower; the upperparts without glaucous cast; the wing-coverts without pronounced darker margins.

RANGE.—Subtropical Zone; western Ecuador.

(866) *Pionus seniloides* (Mass. & Souancé)

Psittacus selinoides (err. typ.) MASS & SOUANCÉ, Rev. et Mag. de Zoöl., 1854, p. 73 (Colombia).

Pionias gerontodes FINSCH, Papag., II, 1868, p. 455 (Ecuador).

Pionus seniloides, B. & T., 1884, p. 309 (Cayanded); 1885, p. 109 (San Rafael); S. & F., 1900, p. 26 (Pun); GOODF., 1902, p. 219 (San Nicolas; Baeza).

Pionus seniloides gerontodes, CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 263 (crit.); L. & R., 1922, p. 50 (Alonguinche; Piganta).

Gualea, 3; Zaruma, 4; Zamora, 1; above Baeza, 4 ♂, 2 ♀; upper Sumaco, 3 ♂, 1 ♀.

RANGE.—Subtropical to humid Temperate Zone; both western and eastern Ecuador.

The character of a narrow white frontal patch which I believed (*loc. cit.*) distinguished the Ecuadorean bird, proves to be inconstant, at least as far as eastern Ecuadorean birds are concerned; four specimens from Baeza and Sumaco have this mark as large as in any of our specimens from Colombia. In seven specimens from western Ecuador this patch does not reach to behind the eyes, and it is possible that they may be separable, when Finsch's name *gerontodes*, based on a Fraser specimen, would be applicable. Since, however, these specimens can be matched by four from eastern Ecuador, I conclude that the full development of the white, rose-tinged forecrown is due to age and not environment.

(867) *Pionus chalcopterus* (Fraser)

Psittacus chalcopterus FRASER, P. Z. S., 1840, p. 59 (Bogotá).

Pionus chalcopterus, SCL., 1859a, p. 147 (Pallatanga); B. & T., 1883, p. 573 (Chimbo); HART., 1898, p. 500 (Paramba); GOODF., 1902, p. 220 (Santo Domingo); L. & R., 1922, p. 50 (Gualea).

Mindo, 3 ♂, 1 ♀; Rio de Oro, 1 ♂, 1 ♀ ?; Bucay, 1 ♂; Chimbo, 1 ♀; Punta Santa Ana, 1 ♂; Alamor, 5 ♂, 1 ♀; Cebollal, 2 ♂.

RANGE.—Subtropical and upper border of the Tropical Zone in western Ecuador and northwestern Peru north throughout most of Colombia.

A strongly marked species which, like certain other members of its genus, shows no racial variation, our Ecuadorean birds agreeing with an excellent series from Colombia.

(874) *Hapalopsittaca pyrrhops* (Salv.)

Pionopsitta pyrrhops SALV., Ibis, 1876, p. 495 ("Hab. Santa Rita et San Lucas, rep. Equat."); SALVAD., Cat. Bds. B. M., XX, 1891, p. 342 (Santa Rita, San Lucas, Jima) ex. Buckley.

? *Pionopsitta amazonina*, MEN., Bull. Soc. Phil. Paris, 1908, p. 85 (upper Napo, young).

Jima, 1 (Buckley).

RANGE.—Ecuador (humid Temperate Zone ?).

This species appears to be known only from Buckley's collections at Jima and Santa Rita. In the coloration of its wings it resembles *H. fuertesi* but it differs from that species in the presence of red at the base of the bill and its absence in the tail, greener, less yellow color of the body, etc.

While specifically distinct, *pyrrhops*, *fuertesi*, and *amazonina* appear to represent one another. Possibly, therefore, the young bird from the upper Napo referred by Menegaux to *amazonina* should be placed under *pyrrhops*.

(876) *Eucinetus pulchra* (Berl.)

Pionopsitta pulchra BERL., Orn. Monat., V, 1897, p. 175 (San José, R. Dagua, Col.); HART., 1898, p. 500 (Cachaví); L. & R., 1922, p. 50 (near Guala, 4,000 ft.).

Rio de Oro, 1 ♀; El Chiral, 3 ♂, 2 ♀.

RANGE.—Colombian-Pacific Fauna from southern Ecuador to the Atrato.

Doubtless occurs throughout the Colombian-Pacific Fauna. In the southern part of its range it reaches the lower part of the Subtropical Zone. Our specimens agree with a toptotypical series.

While wholly distinct, this species obviously represents *E. hæmatotis coccineicollaris* of eastern Panama and Central America. Their common ancestry is suggested by the presence in many individuals of *hæmatotis* of red feathers in the black cheeks.

(878) *Eucinetus barrabandi* (Kuhl)

Psittacus barrabandi KUHL, Consp. Psitt., 1820, p. 61 ("Brasilia").

Caica barrabandi, SCL., 1858a, p. 76 (Napo).

Pionopsitta barrabandi, L. & R., 1922, p. 50 (Curaray).

'Napo,' 1.

RANGE:—Tropical Zone, upper Amazonia; unknown in western Ecuador.

Presumably represents *E. caica* of the Guianas.

(885) *Urochroma hueti* (Temm.)

Psittacus hueti TEMM., Pl. Col., 1830, pl. 491 ("probablement du Pérou").

Urochroma hueti, GOODF., 1902, p. 220 (Baeza).

RANGE.—Tropical Zone; British Guiana to eastern Ecuador and northeastern Peru.

We have no specimens from Ecuador.

(887) *Urochroma stictoptera* Scl.

Urochroma stictoptera SCL., P. Z. S., 1862, p. 112, pl. xi, ("Hab. in Nov. Granada int."); GOODF., 1902, p. 220 (Baeza).

RANGE.—Bogotá to Baeza.

We have no specimens.

(890) *Pionites melanocephala pallida* (Berl.)

Caica melanocephala pallida BERL., J. f. O., 1889, p. 317 (Yurimaguas, Peru).

• *Caica melanocephala*, SCL., 1858a, p. 76 (Napo); B. & T., 1885, p. 109 (Canelos).

'Napo,' 1; east of Baños, 1.

RANGE.—Tropical Zone: the species, Guianas to Peru; the race, eastern Colombia to eastern Peru.

ORDER CORACIIFORMES

FAMILY STEATORNITHIDÆ. OIL-BIRD

(894) *Steatornis caripensis* Humb.

Steatornis caripensis HUMB., Rec. Obs. de Zool. et Anat. Comp., II, 1817, p. 141 (Caripe, Ven.); S. & F., 1900, p. 13 (Valle del Rio Santiago; Gole di Batan, Quito); L. & R., 1922, p. 50 (Quito; Pichincha).

Steatornis caripensis peruvianus, B. & T., 1885, p. 106 (Mayorazgo).

Near Quito, 1 ♂.

Peruvian specimens in the British Museum examined by me do not appear to differ from others from Venezuela.

FAMILY ALCEDINIDÆ. KINGFISHERS

(895) *Megaceryle torquata torquata* (Linn.)

Alcedo torquata LINN., Syst. Nat., I, 1766, p. 180 (Mexico and Martinique).

Ceryle torquata, SCL., 1860d, p. 284 (Babahoyo); TACZ., 1877, p. 328 (Lechugal); S. & F., 1900, p. 19 (Vinces; Naranjal); GOODF., 1902, p. 211 (lower Napo); L. & R., 1922, p. 50 (Chillo Valley).

Streptoceryle torquata cyanea, BANGS & PENARD, Bull. M. C. Z., LXII, 1918, p. 53 (crit.).

Bucay (Rhoads).

RANGE.—Argentina to Mexico.

In spite of its wide latitudinal range, this species has a comparatively narrow altitudinal range, it being confined in Ecuador, so far as the records go, to the Tropical Zone, both on the Pacific and Atlantic sides of the Andes. It is a common species both near salt and fresh water, and is found on mangrove-bordered lagoons or the sides of mountain streams.

According to Bangs and Penard (*loc. cit.*), the name *torquata torquata* (Linn.), based on the Mexican bird, should be restricted to the Central American form, while *cyanea* (Vieill.), based on the Paraguayan form, should be used for all the South American birds from Panama southward to the range of *stellata*. In a series of 16 adult males I find, for example, one from Perico, northern Argentina, which aside from being somewhat smaller, closely resembles another from Tamaulipas, Mexico; another from the Cauca Valley, Colombia, which agrees exactly with one from Matagalpa, Nicaragua; a third from Paraguay (type-locality of *cyanea*) has the under tail-coverts nearly immaculate; while a fourth from western Peru has these feathers much less spotted than one from Chiriqui. Females and immature males from throughout this whole area cannot be distinguished, and this fact, in connection with the obvious inconstancy of the characters attributed to the two proposed races, makes it, in my opinion, unwise to attempt to use names which, in most instances, could be applied with certainty only on the basis of locality rather than on differentiating characters. I therefore follow Ridgway and use the name *torquata* for all South American birds north of the range of *stellata*.

(898) *Chloroceryle amazona* (Lath.)

Alcedo amazona LATH., Ind. Orn., I, 1790, p. 257 (Cayenne).

Ceryle amazona, GOODF., 1902, p. 211 (Rio Coca); L. & R., 1922, p. 50 (Machangará, below Quito, rare).

Rio Suno, 1 ♂.

RANGE.—Uruguay and Chile to southern Mexico. No record for western Ecuador.

(899) *Chloroceryle americana americana* (Gmel.)

Alcedo americana GMEL., Syst. Nat., I, 1778, p. 451 (Cayenne).

Napo, 1 ♀.

RANGE.—The species, northern Argentina to southern Texas; the race, tropical South America east of the Andes.

(900) *Chloroceryle americana cabanisi* (Tsch.)

Alcedo cabanisi TSCH., Faun. Per., 1846, p. 253 (Peru).

Ceryle americana, SCL., 1860d, p. 284 (Babahoyo); 1860e, p. 296 (Esmeraldas); S. & F., 1900, p. 19 (Vinces; Rio Peripa); L. & R., 1922, p. 50 (below Gualea; Machangará, below Quito).

Ceryle americana americana, MEN., 1911, p. 15 (Tumbaco).

Ceryle cabanisi, TACZ., 1877, p. 328 (Lechugal); B. & T., 1883, p. 571 (Guayaquil); 1885, p. 107 (Yaguachi); GOODF., 1902, p. 211 (Santo Domingo).

Ceryle americana cabanisi, HART., 1898, p. 498 (Cachaví).

Bucay (Rhoads).

Esmeraldas, 3 ♂, 1 ♀; Chone, 2 ♂, 1 ♀; Puna Is., 1 ♀; Bucay, 1 ♂; Chimbo, 1 ♂; Santa Rosa, 1 ♂, 2 ♀; Portovelo, 1 ♂; Casanga, 1 ♂; Pullango, 1 ♂.

RANGE.—Tropical Zone of the Pacific coast of Ecuador southward to southern Peru.

Distinguished from *americana americana* by its larger size, greater amount of white in the wing, particularly in the secondaries, and less chestnut-rufous on the foreneck. The lower tail-coverts in our 40 Peruvian specimens average as much spotted as in *americana*. From *isthmica*, *cabanisi* differs in being larger, in having more white in the wing, more chestnut on the foreneck in the male, and more buff posterior to the anterior breast-band in the female.

Western Ecuadorean specimens are intermediate between *cabanisi* and *americana* but on the whole may better be referred to the first-named. Five males measure, wing 78 to 80 mm.

(901) *Chloroceryle inda* (Linn.)

Alcedo inda LINN., Syst. Nat., I, 1766, p. 179 ("India occid."; "Surinam" substituted by Hellm., P. Z. S., 1911, p. 1192).

Ceryle inda, TACZ., 1877, p. 333 (Palma); SHARPE, Cat. Bds. B. M., XVIII, p. 137 (Sarayacu).

Mindo, 1 ♀; Chone, 2 ♂; Bucay, 1 ♀.

RANGE.—Tropical Zone from Bolivia to Nicaragua; western and eastern Ecuador.

Our specimens are very deeply colored below and have more rufous on the throat and fewer white spots (sometimes none) on the upper-parts than in our limited number of examples from east of the Andes.

(902-3) **Chloroceryle ænea ænea** (Pall.)

Alcedo ænea PALL., in Vroeg's Cat. Ois. Adumbr., 1764, I, No. 54 (Surinam).

Ceryle æquatorialis SHARPE, Cat. Bds. B. M., XVII, 1892, p. 140, pl. 4, fig. 1 (Santa Rita).

Chone, 1 ♀.

RANGE.—The species, Brazil to Mexico; the race, Brazil to Costa Rica.

Doubtless occurring on both sides of the Andes, though it has been recorded only from western Ecuador. "*Ceryle æquatorialis*" of Sharpe was based on a single female, which has the under tail-coverts green and green-spotted feathers bordering the white abdominal spot. Our specimen has the lower tail-coverts immaculate, and while there are some green-spotted feathers in the abdomen, these markings are shown also by a specimen from Panama, facts which cast a doubt on the validity of the proposed western Ecuadorean form.

FAMILY MOMOTIDÆ. MOTMOTS

(904) **Baryphthengus¹ martii martii** (Spix)

Prionites martii SPIX, Av. Bras., II, 1825, p. 64, pl. 60 (in sylvis Paræ).

Momotus semirufus, SCL., 1858a, p. 61 (Napo).

Urospatha martii, S. & F., 1900, p. 18 (Valle del Rio Santiago specimens only); GOODE, 1902, p. 210 (Rio Coca).

? *Urospatha martii olivacea* CORY, Cat. Bds. Am., Field Mus. Pub. No. 197, 1918, p. 108 (Moyabamba, Peru).

'Napo,' 1; Rio Suno, 4 ♂, 2 ♀; below San José, 3 ♂, 1 ♀; Huilca, near Macas, 1.

RANGE.—Tropical Zone, upper Amazonia; represented west of the Andes by *B. m. semirufus*.

The extremes of variation in the color of the upperparts in a series of ten specimens from southeastern Colombia to southeastern Peru are shown by two birds from Florencia, Colombia, one of which has the back pure vivid green while the other is brassy green above. The remaining specimens fall between these two, and I therefore conclude that *olivacea* Cory is based on individual variation. All our birds agree with the character assigned to true *martii* in having the rectrices untrimmed.

(905) **Baryphthengus martii semirufus** (Scl.)

Momotus semirufus SCL., Rev. Zoöl., 1853, p. 489 ("Santa Marta").

Momotus martii, B. & T., 1883, p. 571 (Chimbo).

Urospatha martii semirufa, HART., 1898, p. 497 (Chimbo; Paramba; Cachaví); MEN., 1911, p. 16 (Santo Domingo); L. & R., (Santo Domingo; near Gualaea).

¹ *Urospatha* is considered congeneric with *Baryphthengus*, cf., Bull. Amer. Mus. Nat. Hist., XLVIII, 1923, p. 27.

Urospatha martii, S. & F., 1900, p. 18 (Rio Peripa spp. only).

Mindo, 1 ♂, 1 ♀.

RANGE.—Colombian-Pacific Fauna, north to Nicaragua.

A form of the Colombian-Pacific Fauna distinguished from *B. m. martii* by its spatulate central rectrices and bluer ventral area. A specimen from Honda, Colombia, has the ventral region as in this race, but although fully adult has the tail-feathers practically entire; there is, however, a slight narrowing of the vane of these feathers along the sub-apical portion where denudation usually occurs. Hellmayr¹ refers to western Ecuadorean birds with racket-tipped central rectrices. The two Mindo birds are so marked and we have others from Barbacoas in southwestern Colombia. Doubtless, therefore, the Hondan bird belongs with the small percentage of west-of-the-Andes specimens without spatulate central rectrices.

(906) ***Electron platyrhynchus platyrhynchus*** (Leadb.)

Momotus platyrhynchus LEADB., TRANS. LINN. SOC., XVI, 1883, p. 92 ("Brazil" = w. Ecuador; see Hellm. Nov. Zoöl., 1907, p. 403).

Prionirhynchus platyrhynchus, HART., 1898, p. 497 (Paramba); GOODF., 1902, p. 211 (Santo Domingo specimens only); MEN., 1911, p. 16 (Santo Domingo).

Prionornis platyrhynchus platyrhynchus, L. & R., 1922, p. 51 (Gualea).

Chimbo, 1 ♂; El Chiral, 1 ♂; La Chonta, 1 ♀.

RANGE.—Tropical Zone: the species, Bolivia to Nicaragua; the race, Colombian-Pacific Fauna from southwestern Ecuador to northwestern Colombia (*E. p. minor*, northwestern Colombia to Nicaragua, cf. Chapman, Bull. A. M. N. H., XXXVI, 1917, p. 269).

In addition to its broader and longer bill, both this form and *B. martii semirufus* differ from their Amazonian representative in their bluish green ventral region and, usually, spatulate central rectrices. In a specimen from La Chonta, however, the tail, while apparently fully grown, is untrimmed.

(907) ***Electron platyrhynchus pyrrholæmus*** (Berl. & Stolz.)

Prionirhynchus platyrhynchus pyrrholæmus BERL. & STOLZ., P. Z. S., II, 1902, p. 35 (La Merced, cent. Peru).

Prionorhynchus platyrhynchus, GOODF., 1902, p. 211 (Rio Coca spp. only; see Hellm., Nov. Zoöl., 1907, p. 404).

Rio Suno, 1 ♂; below San José, 1 ♂.

RANGE.—Tropical Zone, upper Amazonia from Bolivia (*E. p. medianum* Todd) to Colombia.

This specimen agrees with a topotypical series from Perené, Peru.

¹ Nov. Zoöl., 1907, p. 403.

(914) **Momotus momota microstephanus** Scl.

Momotus microstephanus SCL., P. Z. S., 1857, p. 251 ("Interior of New Grenada" = east Bogotá region, near Villavicencio).

Momotus subrufescens, GOODR., 1902, p. 210 (Coca).

Momotus momota microstephanus, CHAPM., Bull. A. M. N. H., XLVIII, 1923, p. 39 (Monog.).

Rio Suno, 3 ♂, 2 ♀.

RANGE.—Tropical Zone, eastern Colombia and eastern Ecuador.

These specimens agree with topotypes.

(915) **Momotus momota argenticinctus** Sharpe

Momotus argenticinctus SHARPE, Cat. Bds. B. M., XVII, 1892, p. 323 (Babahoyo, Ec.).

Momotus microstephanus, SCL., 1860e, p. 296 (Esmeraldas); B. & T., 1883, p. 571 (Chimbo); 1885, p. 107 (Yaguachi); TACZ., 1877, p. 328 (Lechugal); S. & F., 1900, p. 18 (Vinces; Rio Peripa).

* *Momotus momota argenticinctus*, CHAPM., Bull. A. M. N. H., XLVIII, 1923, p. 41 (Monog.).

Esmeraldas, 4 ♂, 1 ♀; Chone, 4 ♂; coast of Manaví, 1 ♀; Chongoncito, 1 ♂, 2 ♀; Chongon Hills, 1 ♂; Naranjo, 1 ♂, 2 ♀; Santa Rosa, 7 ♂, 3 ♀; La Chonta, 1 ♂; Portovelo, 1 ♂; Cebollal, 1 ♂; Rio Pindo, 1 ♂, 1 ♀; Salvias, 1 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, South America, east of the Andes, except the present race which inhabits western Ecuador to northwestern Peru; unknown from Colombia. (Fig. 7, p. 55.)

While an arboreal bird, this species is not dependent upon the existence of continuous heavy forested areas, but is also found in the open growth of semi-arid areas. This closely allied representative of *M. m. microstephanus* and only member of the *momota* group west of the Andes may therefore have reached western Ecuador over the Marañon route. We have specimens from as far south as Palambla, Peru.

(916) **Momotus æquatorialis æquatorialis** Gould

Momotus æquatorialis GOULD, P. Z. S., 1857, p. 223 (Archidona, e. Ec.); SCL., 1858a, p. 61 (Napo).

Momotus lessoni æquatorialis, L. & R., 1922, p. 51 (below Baeza).

Momotus lessoni gualæ L. & R., 1922, p. 51 ("below Gualæ," 1 ♂; locality doubtless incorrect).

Baeza, 2 ♂, 1 ♀; below Baeza, 3 ♂, 1 ♀; Rio Quijos, 1 ♂; Rio Sardinias, 2 ♂, 1 ♀; lower Sumaco, 2 ♀.

RANGE.—Subtropical Zone of eastern Ecuador and of all three Andean ranges in Colombia; (unknown from western Ecuador?). *M. æ. chlorolæmus*, eastern Peru.

The type doubtless came from above Archidona since the species is unknown from the Tropical Zone, and hence Baeza birds may be considered as topotypical. Colombian specimens from all three ranges of the Andes agree with them.

Momotus lessoni gualeæ Lönn. & Rendh. is apparently based on individual variation. The character of a violet border to the blue of the crown is shown by many individuals in our series of 26 specimens, including birds from Baeza and the West Andes of Colombia. Furthermore, in spite of the presence of this species in western Colombia, it is extremely doubtful if it occurs in western Ecuador. The only record for that region is the one above mentioned of Lönnberg and Rendahl from Gualea, but the Quito bird collectors assured me that they had never seen the species there and, on further consideration, Mr. Söderstrom, from whom Lönnberg and Rendahl received their specimen, tells me that he believes it must have been labeled "Gualea" in error.

FAMILY NYCTIBIIDÆ. POTOOS

(920) *Nyctibius bracteatus* Gould

Nyctibius bracteatus GOULD, P. Z. S., 1846, p. 1 ("Hab. Santa Fé de Bogotá"); HART., Cat. Bds. B. M., XVI, 1892, p. 623 (Sarayacu).

RANGE.—Tropical Zone, Amazonia.

We have no Ecuadorean specimens.

(920a) *Nyctibius maculosus* Ridgw.

Nyctibius maculosus RIDGW., Proc. Biol. Soc. Wash., 1912, p. 92 (Ambato, Ec.). "Ambato" = Eastern Ecuador, the type.

RANGE.—Eastern Ecuador and eastern Colombia.

The type of this species was received in a small collection said to have come from Ambato. This locality, however, is in the arid Temperate Zone of the interandine tableland, a region in which *Nyctibius* is unknown. Since, however, the collection also contained such a distinctively east Ecuadorean species as *Osculatia saphirina*, it is more than probable that it came from the region near or below Baños which stands at the gateway of the tableland to the Oriente. *Nyctibius maculosus*, of which we have a Bogotá specimen, as well as the type, is evidently a representative of *Nyctibius leucopterus* Wied of eastern Brazil, from which it differs chiefly in its larger size (wing 263 mm., as compared

with 205 mm.). It may be added that of two birds in the American Museum labeled by Wied "*Nyctibius leucopterus*," one, the female, is that species as he described it; the other, a male, is a form of *Nyctibius griseus*. This latter specimen agrees approximately in size with a Chapada, Matto Grosso, specimen, to which reference is made below, and, like it, has the inner web of the outer primary with comparatively distinct markings.

(922) *Nyctibius griseus panamensis* Ridgw.

Nyctibius griseus panamensis RIDGW., Proc. Biol. Soc. Wash., XXV, 1912, p. 91 (Natá, Coclé, Panama).

Nyctibius pectoralis, SCL., 1860b, p. 79 (western slope of the Andes).

Nyctibius jamaicensis, B. & T., 1883, p. 569 (Chimbo); HART., 1898, p. 496 (Paramba).

Nyctibius jamaicusis [sic.], S. & F., 1900, p. 13 (Gualaquiza; Vinces).

Nyctibius jamaicensis griseus, L. & R., 1922, p. 52 (Milligalli; near Guala).

Guala, 1 ♂; Mindo, 2 ♂; Bucay, 1 ♂; Napo, 1 ♀; below San José, 1 ♂; Macas, 1.

RANGE.—The species, Paraguay to Mexico; the race, Tropical Zone, eastern and western Ecuador north through Colombia to Panama.

I am unable to find any constant difference in our series of birds from Ecuador, one from Antioquia, Colombia, and two from the Canal Zone, Panama. The entire range of variation in color is covered by the two Panama birds (one from Gatun, the other collected by McLeannan and Galbraith probably near Lion Hill), while the variation in size is not correlated with locality, as the appended measurements show.

On the theory that birds from eastern Ecuador and northern Brazil would be the same, it is possible that Gould's name of *pectoralis* may be applicable to these Ecuadorean birds. His life-size plate (Icon. Av., pt. II, 1838) shows a bird with a wing of 273 mm., but this bird has comparatively distinct bars on the inner web of the outer primary, and his description refers to these markings. This is a character shown by a specimen of *cornutus* from Santa Ana, Missiones, Argentina, and also in a smaller, darker bird from Chapada, Matto Grosso, which, indeed, may be referable to *pectoralis*. In none of our Ecuadorean, Colombian, and Panaman specimens, however, are the marks on the inner web of the outer primary as evident as they are in the two southern birds just mentioned; indeed, in most of them they are barely evident. While far from conclusive, the available evidence points to the affinity of *pectoralis* with *cornutus*, while the Ecuadorean birds, from both sides of the Andes, are referable to the Panaman form.

Locality		Measurements	Wing mm.	Tail mm.
Gatun, Pan.	♂		280	186
Lion Hill (?), Pan.	♂		279	195
Near Medellin, Col.	?		278	202
Below Gualea, Ec.	♂		273	194
Mindo, Ec.	♂		273	189
Bucay, Ec.	♂		266	194
Napo, Ec.	♀		273	193
Macas, Ec.	?		270	
Below San José, Ec.	♂		265	187

(923) *Nyctibius longicaudatus longicaudatus* (Spix)

Caprimulgus longicaudatus SPIX, AV. Bras. II, 1825, p. i ("in sylvis fl. Japuræ").

Nyctibius longicaudatus, HART., Cat. Bds. B. M., XVI, 1892, p. 627 (Sarayacu); S. & F., 1900, p. 13 (Valle del Santiago).

Below San José, 1 ♀.

RANGE.—Tropical Zone; Amazonia (*N. l. chocoensis* in western Colombia).

This specimen is but little lighter in general color than one of our two specimens of *N. l. chocoensis*, but the tail measures 285 mm. as compared with 255 mm. in that form.

(925) *Nyctibius grandis* (Gmel.)

[*Caprimulgus*] *grandis* GMEL., Syst. Nat., I, 1789, p. 1029 ("Habitat in Cayenne").

Nyctibius grandis, HART., Cat. Bds. B. M., XVI, 1892, p. 628 (Sarayacu).

RANGE.—Tropical Zone; Amazonia, Venezuela; Colombia; Guiana.

We have no specimens from Ecuador.

FAMILY CAPRIMULGIDÆ. NIGHTJARS

(926) *Chordeiles virginianus virginianus* (Gmel.)

Caprimulgus virginianus GMEL., Syst. Nat., I, 1789, p. 1028 (Virginia).

Portovelo, 1 ♂ (Oct. 19).

RANGE.—Breeds in North America; winters as far south as Argentina.

Our specimen shows a wing measurement of 193 mm. and is therefore just on the line that separates *virginianus* from *chapmani*. The species does not appear to have been previously recorded from Ecuador.

(928a) *Chordeiles acutipennis æquatorialis* Chapm.

Chordeiles acutipennis æquatorialis CHAPM., Am. Mus. Novit., No. 67, 1923, p. 1 (Duran, Ec.).

Chordeiles acutus, TACZ., 1877, p. 327 (Tumbez).

Chordeiles pruinosus, TACZ., 1877, p. 753 (Tumbez).

Chordeiles acutipennis, S. & F., 1900, p. 13 (Vinces).

Esmeraldas, 2 ♂; Chone, 1 ♂, 1 ♀; Guayaquil, 1 ♀; Duran, 3 ♀; Puna Is., 1 ♀.

Subspecific Characters.—Nearest *Chordeiles acutipennis pruinosus* (Tsch.) of western Peru. The male with the ochraceous markings everywhere more pronounced and deeper, especially in the crown, back, wing-coverts, throat, and abdomen.

RANGE.—Tropical Zone of western Ecuador, chiefly Equatorial Arid Fauna.

This is obviously an intermediate form between true *acutipennis* of Colombia and eastward to Cayenne, and *acutipennis pruinosus* of western Peru; and the region it inhabits is also a transition area between humid western Colombia and arid western Peru. There is, indeed, evident variation within the limits of Ecuador and, as the rainfall decreases from the north southward, so do specimens from Puna Island, when compared with those from Esmeraldas, show a distinct approach toward *pruinosus*.

(937) *Lurocalis rufiventris* Tacz.

Lurocalis rufiventris TACZ., Orn. Pér., I, 1884, p. 209 (Tambillo, Peru); B. & T., 1884, p. 306 (Cayandeled).

RANGE.—Subtropical Zone, Peru and Colombia.

We have no Ecuadorean specimens.

(938) *Uropsalis lyra* (Bonap.)

Hydropsalis lyra BONAP., Consp. Av., I, 1850, p. 59 (Colombia).

Macropsalis lyra, HART., Cat. Bds. B. M., XVI, 1892, p. 602 (Ecuador.—Buckley).

RANGE.—Peru to Venezuela.

Known from Ecuador only on the basis of a Buckley specimen in the British Museum.

(940) *Macropsalis segmentata* (Cass.)

Hydropsalis segmentata CASS., Proc. Acad. Nat. Sci. Phila., 1849, p. 236 ("Bogotá, New Granada").

Macropsalis segmentata, HART., Cat. Bds. B. M., XVI, 1892, p. 602 (Matos).

RANGE.—Bolivia to Colombia.

We have no specimens from Ecuador.

(945) *Hydropsalis climacocerca* Tsch.

Hydropsalis climacocerca TSCH., Arch. für Naturg., 1844, p. 269 (Peru).

"Ambato" = near Baños region, 1 ♂; Macas, 1 ♂.

RANGE.—Tropical Zone, upper Amazonia, Colombia to Bolivia; unknown from western Ecuador.

The male of this species has a rufescent as well as a gray phase. Specimens from southeastern Peru represent both phases, and can be matched by a rufescent bird from La Morelia, Colombia, and the two Ecuadorean birds above recorded. Females from southeastern Colombia and southeastern Peru agree exactly.

(948) *Nyctidromus albicollis albicollis* (Gmel.)

Caprimulgus albicollis GMEL., Syst. Nat., I, 1788, p. 1030 (Cayenne).

Nyctidromus albicollis, TACZ., 1877, p. 327 (Tumbez); B. & T., 1883, p. 569 (Chimbo); 1884, p. 306 (Cayandedé); HART., 1898, p. 497 (Chimbo); S. & F., 1900, p. 13 (Gualaquiza); MEN., 1911, p. 17 (Santo Domingo).

Huigra; Junction of Chanchan and Chiguancay (Rhoads).

Esmeraldas, 5 ♂, 2 ♀; Rio Blanco, below Mindo, 1 ♂; Chone, 2 ♂; Cerro Manglar Alto, 1 ♀ im.; Naranjo, 1 ♂; Lolita, near Bucay, 4 ♂, 1 ♀; Chimbo, 1 ♂; La Chonta, 1 ♂; La Puente, 1 ♂; Zaruma, 3 ♀; Salvias, 2 ♀; Rio Pindo, 1 ♂; Las Piñas, 1 ♀; Alamor, 2 ♂; Zamora, 7 ♂, 1 ♀; Rio Suno, 2 ♂, 1 ♀.

RANGE.—The species, southern Brazil to Texas; the race, Tropical Zone, Amazonia, and Colombian-Pacific Fauna.

Our large series presents wide variation but, making due allowance for dichromatism, I am unable to find any racial difference between our series from eastern and from western Ecuador. Nor can I separate them, as a whole, from our small number of Guiana and Cayenne specimens.

(955) *Systellura ruficervix ruficervix* (Scl.)

Stenopsis ruficervix SCL., P. Z. S., 1866, p. 140, pl. xiv (int. Colombia); B. & T., 1885, p. 105 (Mapoto); S. & F., 1900, p. 13 (La Concepcion); GOODF., 1902, p. 208 (Papallacta); L. & R., 1922, p. 52 (Quito; Nono; Lloa; Pichincha; Guápulo; Zambiza; Corazon).

Junction of Chanchan and Chiguancay (Rhoads).

Guápulo, 1 ♀; Carapungo, 1 ♂; Mt. Chimborazo, 2 ♂; Taraguacocha, 1 ♂; Salvias, 1 ♂.

RANGE.—Temperate Zone: the species, Peru to Venezuela; the race, Ecuador to the Mérida region of Venezuela; occasional in the Tropical Zone.

A form apparently of South Temperate Zone origin. It is represented in that region by *S. longirostris*, on the coast of Peru by *S. decussata*, and in the Andean Temperate of Peru by *S. r. atripunctata*.

Our Ecuadorean specimens agree with a large series from Colombia and Venezuela.

(958) **Nyctiphrynus ocellatus ocellatus** (*Tsch.*)

Caprimulgus ocellatus TSCH., Arch. für Naturg., 1844, p. 268 (Peru); HART., Cat. Bds. B. M., XVI, 1892, p. 578 (Sarayacu).

Rio Suno, 1 ♀.

RANGE.—Tropical Zone: the species, Brazil to Nicaragua; the race, Brazil, eastern Peru, and eastern Ecuador.

Known in Central America only from the type (a female) of *Nyctiphrynus ocellatus lautus* Miller & Griscom, which agrees in color with this Ecuadorean specimen but is smaller, wing 117 mm., instead of 125 mm.

(959) **Nyctiphrynus rosenbergi** (*Hart.*)

Caprimulgus rosenbergi HART., Bull. B. O. C., V, 1895, p. 10 (R. Dagua, w. Col.); 1898, p. 496 (Cachavi).

RANGE.—Tropical Zone; northwestern Ecuador and western Colombia.

We have two specimens from Barbacoas, Col., but none from Ecuador.

(961) **Setopagis parvulus** (*Gould*)

Caprimulgus parvulus GOULD, P. Z. S., 1837, p. 22 ("Santa Fé, Rio Parana"); BRAB. & CHUBB, Bds. So. Am., 1912, p. 101 (Ecuador and other countries).

RANGE.—Argentina to Colombia.

Doubtless occurs in eastern Ecuador though I know of no more definite record than the one above quoted.

(961a) **Setopagis anthonyi** *Chapm.*

Setopagis anthonyi CHAPM., Am. Mus. Novit., No. 67, 1923, p. 4 (Portovelo, Ec.). Portovelo, 1 ♂.

Specific Characters.—With a general resemblance to *Setopagis parvulus*, but back and rump barred with black and ochraceous; wing-coverts tipped with ochraceous instead of whitish; inner vane of outer pair of rectrices entirely white, except along shaft on subapical half; outer five, instead of four, primaries barred with white.

This well-marked species, known only from the type, is doubtless a representative of *Setopagis parvulus*.

(964) *Nyctipolus nigrescens* (Cab.)

Caprimulgus nigrescens CAB., in Schomb. Reis. Guiana, III, 1848, p. 710 (British Guiana); HART., Cat. Bds. B. M., XVI, 1892, p. 573 (Sarayacu).

Zamora, 1 ♂.

RANGE.—Tropical Zone: Amazonia; unknown from western Ecuador.

Our specimen resembles two from British Guiana.

FAMILY MICROPODIDÆ. SWIFTS

(969) *Streptoprocne zonaris albicincta* (Cab.)

Hemiprocne albicincta CAB., J. f. O., 1862, p. 165 (Guiana = "Mexico bis Guiana").

Acanthylis albicollis, SCL., 1854, p. 110 (Quijos); 1858a, p. 60 (Napo).

Hemiprocne zonaris, B. & T., 1883, p. 579 (Guayaquil; Chimbo).

El Chiral, 2 ♀; below San José, 1 ♂.

RANGE.—The species, Argentina to Costa Rica; the race, Tropical Zone, ranging upward to the Subtropical Zone; Amazonia to Costa Rica; eastern and western Ecuador.

Specimens from Colombia and Ecuador average larger than those from Guiana, but are to be referred to that race. Dr. Hellmayr, after examining Lawrence's type of *minor*, has expressed to me his belief that the specimen came from the lower Orinoco region and not from Colombia.

(969a) *Streptoprocne zonaris altissima* Chapm.

Streptoprocne zonaris altissima CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 604 (Laguneta, Col.).

Chætura zonaris, HART., 1898, p. 496 (Pichincha); GOODF., 1902, p. 208 (East Andes, 10,000 to 15,500 ft.); MEN., 1911, p. 7 (Guápulo).

Hemiprocne zonaris, S. & F., 1900, p. 12 (Chaupi).

Chætura zonaris altissima, L. & R., 1922, p. 52 (Chillo valley; Corazon; Machanagará; La Carolina; above Quito, nest with naked young, Jan. 8).

Pichincha, above Quito, 4 ♂; Corazon, 1 ♂, 1 ♀.

RANGE.—Temperate Zone; Ecuador and Colombia.

These specimens confirm the validity of this race. They measure, wing 215 to 223 mm.

(971) *Chætura brachyura* (Jard.)

Acanthylis brachyura JARD., Ann. & Mag. Nat. Hist., XVIII, 1846, p. 120 (Tobago).

Casanga, 2 ♂, 1 ♀, 1 ?; "Quito," 3.

RANGE.—Tropical Zone, southern Brazil to Venezuela; southwestern Ecuador.

This species does not appear to have been previously recorded from Ecuador, though in addition to the four specimens collected by Cherrie we have long had three native-made skins labelled 'Quito'; whether the latter came from eastern or western Ecuador it is impossible to say. However, the Casanga birds definitely establish the presence of the species on Pacific drainage, while its occurrence in Amazonian Ecuador cannot be doubted.

Compared with a series from Trinidad, the Casanga specimens have the wings bottle-green instead of steel-blue, a difference doubtless due to the fact that the Ecuadorean birds are in postnuptial, the Trinidad birds in prenuptial plumage. The former also have the chin and upper throat grayish, but whether this is a seasonal variation I am unable to say. It is not shown by the 'Quito' birds, which agree with those from Trinidad. The former may, however, have come from eastern Ecuador and the Casanga birds may constitute a slightly differentiated, western Ecuadorean race.

(975) *Chætura spinicauda* (Boie)

Acanthylis spinicauda BOIE, Isis, 1826, p. 971 (Cayenne).

Chætura spinicauda, B. & T., 1883, p. 569 (Chimbo)

RANGE.—Lower Amazonia north to Trinidad and Venezuela; western Ecuador.

Berlepsch and Taczanowski, after comparison with specimens from Cayenne and British Guiana, refer a single specimen from Chimbo to this species. There are no other Ecuadorean records, and we have no Ecuadorean specimens.

(977) *Chætura cinereiventris sclateri* Pelz.

Chætura sclateri PELZ., Orn. Bras., I, 1868, p. 56 (Borba, R. Madeira); S. & F., 1900, p. 12 (Gualaquiza).

Zamora, 1 ♂.

RANGE.—The species, Brazil to Nicaragua; the race, upper Amazonia.

I have seen no topotypical specimens and follow Hellmayr (Orn. Gesell. Bayern, VIII, 1907, p. 157) in referring the eastern Ecuadorean bird to this form. It agrees with a specimen from above Villavicencio, Colombia.

(978) *Chætura cinereiventris occidentalis* Berl. & Tacz.

Chætura sclateri occidentalis BERL. & TACZ., P. Z. S., 1883, p. 569 (Chimbo, Ec.); MEN., 1911, p. 17 (Santo Domingo).

El Chiral, 1 ♂; Las Piñas, 2 ♀.

RANGE.—Tropical and Subtropical Zones of western Ecuador and western Colombia.

Specimens from western Ecuador and western Colombia agree.

(983) *Cypseloides brunneitorques brunneitorques* (Lafr.)

Chætura brunneitorques LAFR., Rev. Zoöl., 1844, p. 81 (Colombia); B. & T., 1885, p. 105 (Mapoto); S. & F., 1900, p. 12 (Gualaquiza).

RANGE.—Chiefly Subtropical Zone from Peru to southeastern Mexico; western and eastern Ecuador (*C. b. griseifrons* in western Mexico).

Our specimens agree with others from Colombia.

(985) *Cypseloides fumigatus* Streub.

Cypseloides fumigatus STREUB., Isis, 1848, p. 366 (Brazil).

Cypseloides fumigatus [sic], S. & F., 1900, p. 13 (Gualaquiza).

RANGE.—Tropical Zone; Brazil, Peru, eastern Ecuador.

We have no specimens from Ecuador.

(988) *Panyptila cayennensis* (Gmel.)

Hirundo cayennensis GMEL., Syst. Nat., I, 1789, p. 1024 ("Cayenna").

Panyptila cayennensis, B. & T., 1883, p. 569 (Guayaquil).

RANGE.—Tropical Zone; Brazil to Colombia and the Guianas.

We have no specimens from Ecuador.

FAMILY TROCHILIDÆ. HUMMINGBIRDS

(992) *Doryfera johannæ* (Bourc.)

Trochilus johannæ BOURC., P. Z. S., 1847, p. 45 ("Le Perou." A specimen in the Elliot collection, A. M. N. H., No. 37592, is labeled by Elliot "Type, New Granada").

Doryfera johannæ, OBERH., 1902, p. 310 (Archidona).

Below San José, 4 ♂, 4 ♀.

RANGE.—Tropical Zone, Guiana to eastern Colombia, eastern Ecuador and eastern Peru.

Ecuadorian and Colombian specimens agree. I have seen none from Guiana or Peru.

(994) *Doryfera ludoviciæ rectirostris* Gould

Doryfera rectirostris GOULD., Introd. Trochil., 1861, p. 71 (Ecuador).

Dorifera ludoviciæ, SCL., 1860c, p. 95 (Nanegal).

Hemistephania rectirostris, B. & T., 1885, p. 102 (Mapoto); S. & F., 1900, p. 4 (Gualea).

Doryfera ludoviciæ rectirostris, OBERH., 1902, p. 310 (Milligalli; Baeza); L. & R., 1922, p. 53 (Milligalli; Mindo).

Hemistephania ludoviciæ rectirostris, Simon, 1907, p. 17 (San Nicolas).

"Quito," 3; below Oyacachi, 23♂, 14♀; below San José, 1♂, 1♀; lower Sumaco, 1♀.

RANGE.—Subtropical Zone: the species, western Venezuela to Bolivia, Costa Rica and western Ecuador.

The Costa Rican form, *D. l. veraguensis*, appears to me to be only racially separable. The two currently recognized South American forms, *ludoviciæ* of "Bogotá" and *rectirostris* of "Quito," differ only in size, the latter being the larger. Our topotypical specimens confirm the characters ascribed to these races, but our specimens as a whole fail to show their ranges. Eastern Ecuadorean birds have always been referred to *rectirostris*, Bolivian birds to *ludoviciæ ludoviciæ*, thus dividing the range of the latter. The differences at best are not very pronounced, and if they prove to be so variable that the ranges of two forms cannot be clearly defined, it seems obvious that only one form should be recognized. I append measurements of our specimens, but, unfortunately, we have no authentic western Ecuadorean material.

Measurements

Place		Wing mm.	Tail mm.	Culmen mm.
Near Mérida, Ven.	♂	59	32.3	35
Near Mérida, Ven.	♂	60	31	35
Near Mérida, Ven.	♂	59	32	35
"Bogotá"	♂		29.5	35
"Bogotá"	♀	60	31	35
Buena Vista, east of Bogotá	♀	56	32.3	36
Salento, Cent. Andes, Col.	♀	57	31	37
Salento, Cent. Andes, Col.	♂	64	35.5	37
"Quito"	?	64	35.5	42
"Quito"	?	61	31.5	40
Below Oyacachi, Ec.	5♂	62-64	33-34	37-38
Below Oyacachi, Ec.	5♀	59-60	32-34	37-38
Santo Domingo, Peru	♀	56	30	36
Santo Domingo, Peru	♀	57	29.5	36
Santo Domingo, Peru	♀	54	29.5	36

(995) *Androdon æquatorialis* Gould

Androdon æquatorialis GOULD, Ann. & Mag. Nat. Hist., Ser. 3, XII, 1863, p. 247 (Ecuador); SIMON, 1907, p. 17 (Santo Domingo); L. & R., 1922, p. 53 (Santo Domingo; Pechahal).

"Ecuador," 2 from Gould collection, 1 labeled "a type"; 1, "Bourcier Coll".

RANGE.—Tropical Zone; Colombian-Pacific Fauna, to eastern Panama.

The variations in the hooking and serration of the bill referred to in my work on Colombian birds (1917, p. 279) are apparently not of racial significance.

(999) *Threnetes cervinicauda* Gould

Threnetes cervinicauda GOULD, P. Z. S., 1854, p. 109 (Quijos, Ec.); SCL., 1854, p. 109 (Quijos); S. & F., 1900, p. 3 (Valle de Zamora); OBERH., 1902, p. 310 ("Napo Village"); L. & R., 1922, p. 53 (Archidona).

Archidona, 1 ♂; below San José, 3 ♂, 2 ♀; Rio Suno, 1 ♂ im., 1 ♀; Canelos, 1.

RANGE.—Tropical Zone; Amazonia.

Represents *T. leucura* from which it may be only subspecifically distinct. Specimens from southeastern Peru have the rectrices whiter than in specimens from Surinam, while a Pará bird is intermediate. I am unable, therefore, to assign definite ranges to these two forms.

(1000) *Threnetes ruckeri fraseri* (Gould)

Glaucis fraseri GOULD, Mon. Trochil., I, 1861, pl. 12 (Esmeraldas).

Glaucis ruckeri, SCL., 1860e, p. 296 (Esmeraldas).

Threnetes fraseri, HART., 1898, p. 493 (Cachaví); S. & F., 1900, p. 2 (Rio Peripa); OBERH., 1902, p. 310 (Santo Domingo); SIMON, 1907, p. 17 (Chones; Nono).

Threnetes ruckeri fraseri, HELLM., P. Z. S., 1911, p. 1177 (crit.); CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 279 (crit.).

Esmeraldas, 3 ♂, 2 ♀; Manaví, 2 ♂, 1 ♀; Bucay, 1 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, western Ecuador to western Venezuela and Nicaragua; the race, western Ecuador and western Colombia.

I have before given my reasons for considering this form a race of the Central American bird (*loc. cit.*). The eastern Panaman bird, to which I therein referred as intermediate between *fraseri* and *ruckeri*, has since been described as *Threnetes ruckeri dariensis* Bangs and Barbour (Bull. M. C. Z., LXV, 1922, p. 204). This species is made the type of the genus *Heteroglaucis* Simon, but I should consider it the cisandine representative of *Threnetes cervinicauda*.

(1000a) *Glaucis hirsuta affinis* Lawr.

Glaucis affinis LAW., Ann. Lyc. Nat. Hist. N. Y., VI, 1858, p. 261 (Napo, Ec.).

Glaucis hirsuta affinis, OBERH., 1902, p. 311 ("a village near the headwaters of the Napo").

Napo, 1 (type); below San José, 1 ♂.

RANGE.—Tropical Zone: the species, southeastern Brazil to Panamá; the race, upper Amazon, Colombia, and Panama.

I am unable to separate specimens from eastern Ecuador and eastern Colombia from a good series from the interior of Colombia and eastern Panama, as already stated in my work on Colombian birds (p. 280) wherein I compared the distribution of this species to that of *Ostinops decumanus*.

According to Simon (Syn. Troch., p. 248) this species should be known as *Glaucis tomineo* (Linn.).

(1002) *Glaucis ænea* Lawr.

Glaucis æneus LAW., Proc. Acad. Nat. Sci. Phila., 1867, p. 232 (Costa Rica); CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 280 (crit.).

Esmeraldas, 3 ♂, 1 ♀.

RANGE.—Tropical Zone; northwestern Ecuador, western Colombia; Costa Rica and Nicaragua.

I have already expressed my belief in regard to the status of this species.

(1005) *Phoebastria guyi emiliæ* (Bourc. & Muls.)

Trochilus emiliæ BOURC. & MULS., Ann. Sci. Phys. et Nat. Lyon, IX, 1846, p. 317 (Bogotá, Col.).

Phaethornis emiliæ, S. & F., 1900, p. 3 (Gualaquiza).

Guyornis guyi napensis SIMON, Syn. Troch., 1921, pp. 18; 258 (Napo).

Archidona, 1 ♂; San José, 3 ♂, 3 ♀; below San José, 4 ♂, 3 ♀; Zamora, 1 ♂.

RANGE.—Tropical to Subtropical Zones: the species, eastern Peru to Trinidad and Costa Rica; the race, eastern Peru, eastern Ecuador and Colombia, and eastern Panama.

Specimens from Ecuador and Peru do not appear to be separable from 'Bogotá' examples. Eastern Panama birds have the rufous on the throat deeper and more extensive and thus approach *coruscus*.

(1006) *Phæthornis yaruqui yaruqui* (Bourc.)

Trochilus yaruqui BOURC., Compt. Rend., XXXII, 1851, p. 187 ("Habite les bois tres-chauds des environs d'Yaruqui").

Phæthornis yaruqui, SCL., 1860c, p. 94 (Nanegal); B. & T., 1883, p. 566 (Chimbo); HART., 1898, p. 493 (Cachaví; Chimbo); S. & F., 1900, p. 3 (Rio Peripa); SIMON, 1907, p. 18 (Santo Domingo; Atacazo; Gualea; Nono; Babahoyo).

Phæthornis yaruqui, OBERH., 1902, p. 312 (Santo Domingo); L. & R., 1922, p. 53 (Gualea; Intac; Nanegal).

Bucay, June 26, breeding (Rhoads).

Esmeraldas, 5♂; Rio de Oro, 2♂, 2♀; Pato de Pájaro, 2♂; Naranjo, 1♂, 1 im.; Bucay, 1♂, 1♀; Chimbo, 1♀; La Chonta, 4♂, 1♀.

RANGE.—Tropical Zone: the species, western Ecuador and western Colombia; the race, western Ecuador.

We have yet to find *yaruqui* and *guyi* associated. In western Colombia the latter appears to be subtropical. Possibly they are representative forms.

(1009) *Phæthornis superciliosus moorei* Lawr.

Phæthornis moorei LAWRE., Ann. Lyc. Nat. Hist., N. Y. 1858, VI, p. 259 (Napo, Ec.); S. & F., 1900, p. 4 (Valle del Rio Santiago); SIMON, 1907, p. 18 (Napo).

Phæthornis superciliosus SCL., 1854, p. 111 (Quijos).

Napo, 1 (type); Rio Suno, 7♂, 2♀; below San José, 4♂, 1♀.

RANGE.—Tropical Zone: the species, French Guiana to eastern Peru; the race, eastern parts of Peru, Ecuador, and Colombia.

(1015) *Phæthornis superciliosus baroni* Hart.

Phæthornis baroni HART., Ibis, 1897, p. 426 (Naranjal, Rio Pescado, Ec.); SIMON, 1907, p. 18 (Mindo); L. & R., 1922, p. 53 (Nanegal; Intac; Gualea).

Phæthornis longirostris baroni, Oberh., 1902, p. 312 (Santo Domingo).

Esmeraldas, 1♂, 2♀; Chone, 2♀; Chongon Hills, 1♀; Santa Rosa, 1♂; Guainche, 2♂; Alamor, 1♂, 1♀; Cebollal, 1♂.

RANGE.—Tropical Zone: the species, Bolivia to Mexico; the race, western Ecuador.

This species is apparently the western Ecuadorean representative of *P. superciliosus moorei* and is represented in Central America by *longirostris*. No form of this group appears to have been recorded from western Colombia.

(1017) *Phœthornis hispidus* (Gould)

Trochilus hispidus GOULD, P. Z. S., 1846, p. 90 (Bolivia).

Trochilus oseryi BOURC. & MULS., Ann. Sci. Phys. et Nat. Lyon, Ser. 2, IV, 1852, p. 139 (Pastoya, Ec.).

Phæthornis villosus LAWR., Ann. Lyc. Nat. Hist. N. Y., VI, 1858, p. 258 (Ecuador; type in Am. Mus.).

Phæthornis hispidus, OBERH., 1902, p. 313 (Archidona).

Napo, 2 (1 type, *P. villosus*); below San José, 3♂, 1♀; Rio Suno, 1♂, 2♀; Archidona, 1♂.

RANGE.—Tropical Zone; Bolivia to Venezuela.

Comparison of these specimens and one from Villavicencio, east of Bogotá, with three from Bolivia leads to the conclusion that there is but one race of this species. Lawrence's type of *villosus* is not of Bogotá make and is marked by him as received from "W. E. M." [= W. E. Moore], "Napo."

(1019) *Phœthornis syrmatophorus syrmatophorus* Gould

Phæthornis syrmatophorus GOULD, Contrib. to Ornith., 1851, p. 139 (interior of Ecuador = western Ecuador, cf. HELLM., P. Z. S., 1911, p. 1179); SCL., 1859a, p. 145 (Pallatanga); B. & T., 1884, p. 303 (Cayandeled); S. & F., 1900, p. 3 (Gualea); SIMON, 1907, p. 17 (Guallapampa; Gualea).

Phæthornis syrmatophorus berlepschi, OBERH., 1902, p. 313 (Milligalli); L. & R., 1922, p. 53 (Milligalli).

"Ecuador," 1; Quito, 2; Gualea, 1♂.

RANGE.—Subtropical Zone: the species, Ecuador and Colombia; the race, western Ecuador and western Colombia.

We have also five specimens of this race from the western Andes which, together with our eastern Ecuadorean examples of *P. s. columbianus*, confirm Hellmayr's treatment of the species (P. Z. S., 1911, p. 1179).

(1020) *Phœthornis syrmatophorus columbianus* Bouc.

Phæthornis columbianus BOUC., 'The Hummingbird,' I, 1891, p. 17 (Bogotá).

Phæthornis syrmatophorus, B. & T., 1885, p. 102 (Machay; Mapoto).

Baeza, 5♂, 1♀; lower Sumaco, 3♂.

RANGE.—Subtropical Zone; eastern Ecuador and eastern Colombia west to eastern slope of Central Andes.

The characters of this race are fully given by Hellmayr (P. Z. S., 1911, p. 1179).

(1027) *Phœthornis bourcieri* (Less.)

Trochilus bourcieri LESS., Hist. Nat. Trochil., 1832, p. 62, pl. 18 ("Brésil").

Phæthornis bourcieri, S. & F., 1900, p. 3 (Valle del Río Santiago).

Rio Suno, 4♂, 2♀; below San José, 6♂.

RANGE.—Tropical Zone; Guianas to upper Amazonia.

These specimens are paler and less uniform below than two Guiana examples.

(1031) *Phœthornis griseogularis* Gould

Phæthornis griseogularis GOULD, P. Z. S., 1851, p. 115 (Colombia).

Phæthornis griseogularis, OBERH., 1902, p. 313 (Archidona).

Below San José, 3♂, 1♀.

RANGE.—Tropical Zone; Colombia, Ecuador, and Peru, east of the Andes.

These specimens agree with others from Colombia.

(1032a) *Phœthornis striigularis subrufescens* Chapm.

Phæthornis striigularis subrufescens CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 283 (Barbacoas, Col.).

Phæthornis striigularis, B. & T., 1883, p. 566 (Chimbo); HART., 1898, p. 493 (Chimbo; Cachaví).

Pygmornis striigularis, S. & F., 1900, p. 4 (Rio Peripa).

Phæthornis striigularis atrimentalis, OBERH., 1902, p. 313 (Milligalli).

Bucay (Rhoads).

Esmeraldas, 2♂, 2♀, 1?; below Mindo, 1♂, 1♀; Duran, 1♂; Bucay, 1♀.

RANGE.—Tropical Zone: the species, Colombia, Ecuador, eastern Peru and western Brazil; the race, western Ecuador and western Colombia.

These specimens confirm the validity of this race.

(1034) *Phœthornis striigularis atrimentalis* Lawr.

Phæthornis atrimentalis LAWR., Ann. Lyc. Nat. Hist. N. Y., VI, 1858, p. 260 (Napo, Ec.); ? L. & R., 1922, p. 53 (Gualea).

Phæthornis striigularis, SCL., 1854, p. 111 (Quijos).

Phæthornis riojæ, BRAB. & CHUBB, Bds. So. Am., 1912, p. 108 (n. Peru; e. Ecuador).

Napo, 3 (inc. types of *atrimentalis* and *amaura*); below San José, 1♂, 2♀; Rio Suno, 1♂, 1♀.

RANGE.—Tropical Zone; eastern Ecuador to Peru and western Brazil.

The type of *atrimentalis* is more richly colored below than the San José and Rio Suno specimens, nevertheless they all, I think, represent but one form which, contrary to my previously expressed opinion,¹ is evidently a race of *striigularis*. Compared with five specimens, including topotypes, of true *striigularis*, and sixteen, including the type of *s. subrufescens*, *atrimentalis* is larger, more richly colored below and greener above. The wing measures from 39 to 40 mm.; the culmen, 25 to 26 mm.

(1040) **Phæthornis nigricinctus** Lawr.

Phæthornis nigricinctus LAWR., Ann. Lyc. Nat. Hist. N. Y., VI, 1858, p. 260 (Ecuador).

Pygmornis nigricinctus, SALV., Cat. Bds. B. M., XVI, 1892, p. 286 (Sarayacu). Napo, 1 (type).

RANGE.—Tropical Zone; upper Amazon.

The type has a broad, black lower breast-band; the tail rounded.

(1043) **Eutoxeres condaminii condaminii** (Bourc.)

Trochilus condaminii BOURC., Compt. Rend., XXXII, 1851, p. 186 (Archidona, Ec., type 37009, A. M. N. H.).

Archidona, 1 (type); "Ecuador," 1.

RANGE.—Tropical Zone: the species, eastern Colombia to eastern Peru; the race, eastern Ecuador and eastern Colombia.

The type is said to have come from "Nanegan" [= Nanegal ?] but it is labeled "Archidona." We have also two specimens from La Morelia in southeastern Colombia and one of Bogotá make.

(1045) **Eutoxeres aquila aquila** (Bourc.)

Trochilus aquila BOURC., P. Z. S., 1847, p. 42 (Bogotá region).

Eutoxeres aquila heterurus, B. & T., 1885, p. 102 (Machay).

Lower Sumaco, 3♂; below San José, 1♂, 3♀; Rio Suno, 3♂, 2♀.

RANGE.—Tropical Zone: the species, Ecuador to Costa Rica; the race, eastern Ecuador and eastern Colombia.

Ecuadorean specimens agree with 'Bogotá' skins.

¹ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 233.

(1047) *Eutoxeres aquila heterura* Gould

Eutoxeres heterura GOULD, Ann. & Mag. Nat. Hist., I, Ser. 4, 1868, p. 455 (Ecuador).

Eutoxeres aquila heterurus, OBERH., 1902, p. 314 (Santo Domingo).

Eutoxeres heterurus, HART., 1898, p. 493 (Cachaví; Paramba); S. & F., 1900, p. 2 (Rio Peripa); SIMON, 1907, p. 18 (Gualea).

Eutoxeres aquila, SIMON, 1907, p. 18 (Santo Domingo).

Eutoxeres baroni HART. & HART., Nov. Zoöl., I, 1894, p. 54 (Rio Pescado); OBERH., 1902, p. 314 (Santo Domingo).

Eutoxeres aquila baroni, L. & R., 1922, p. 53 (Santo Domingo).

Rio de Oro, 2♂, 2♀; La Chonta, 1♀; El Chiral, 2♂.

RANGE.—Tropical Zone: the race, western Ecuador and southwestern Colombia.

I have already called attention to the variable amount of white in the tail of this species, the extremes occurring at the same locality (Bull. Amer. Mus. Nat. Hist., XXVI, 1917, p. 285). Aside from the decreased amount of white in the tail, this form differs from true *aquila* in having the underparts more heavily streaked with fulvous.

(1050) *Campylopterus obscurus æquatorialis* Gould

Campylopterus æquatorialis GOULD, Introd. Trochil., 1861, p. 54 ("Quito" = Napo region?).

Campylopterus obscurus, SALV., Cat. Bds. B. M., XX, 1894, p. 290 (Sarayacu); OBERH., 1902, p. 315 (Baeza; Archidona).

Rio Suno, 4♂, 3♀; below San José, 1♂, 2♀.

RANGE.—Tropical Zone: the species, northeastern Brazil to Bolivia; the race, Colombia to Bolivia.

(1052) *Campylopterus falcatus* (Swains.)

Trochilus falcatus SWAINS., Zoöl. Ill., 1821, tab. 83 ("Spanish Main"—northeast Venezuela, cf. HELLM. & VON SEIL., Arch. für Naturg., 1912, p. 138).

Campylopterus lazulus, OBERH., 1902, p. 315 (Baeza; above Archidona).

Below Oyacachi, 2♂, 1♀.

RANGE.—Subtropical Zone; western Venezuela, Colombia, and eastern Ecuador.

(1053) *Campylopterus villavicencio* (Bourc.)

Trochilus villavicencio BOURC., Compt. Rend., XXXII, 1851, p. 187 (Napo).

Campylopterus splendens LAW., Ann. Lyc. N. Y., vi, 1859, p. 62 (Napo).

Campylopterus villavicencio, OBERH., 1902, p. 315 (Baeza).

"Quito," 1; Napo, 1 (type of *C. splendens* LAW.); below San José, 3♂, 2♀.

RANGE.—Tropical to Subtropical Zone; eastern Ecuador.

(1058) **Florisuga mellivora mellivora** (Linn.)

Trochilus mellivorus LINN., Syst. Nat., I, 1758, p. 121 ("India"; Brabourne and Chubb designate ("Guiana")).

Florisuga mellivora, SCL., 1860c, p. 95 (Nanegal); B. & T., 1883, p. 566 (Chimbo); HART., 1898, p. 494 (Paramba); OBERH., 1902, p. 315 (vicinity Baeza); SIMON, 1907, p. 18 (Santo Domingo).

Esmeraldas, 5♂. 2 ♀; Duran, 1♂; Puna, 1♂; Rio Suno, 1♂.

RANGE.—Tropical Zone; Bolivia to Mexico. There is a slightly differentiated form in Tobago.

One of the least variable and most widely distributed of Humming-birds.

(1062) **Taphrospilus hypostictus hypostictus** (Gould)

Aphantochroa hyposticta GOULD, P. Z. S., 1862, p. 124 (Ecuador).

Zamora, 4♂, 3 ♀; Rio Suno, 1♂; below San José, 2♂.

RANGE.—Tropical Zone: the species, eastern Ecuador and eastern Peru; the race, eastern Ecuador.

A distinct species. I have seen no specimens from Peru (*T. h. peruvianus* Simon).

(1065) **Patagona gigas** (Vieill.)

Trochilus gigas VIEILL., Gal. Ois., I, 1825, p. 296, pl. 180 ("Bresil").

Patagona gigas, SCL., 1858c, p. 555 (Riobamba); 1860b, p. 81 (Quito); S. & F., 1900, p. 9 (Valle de Riobamba); OBERH., 1902, p. 315 (Guapulo; Valle de Chillo; Quito; road from Quito to Papallacta).

Riobamba; Cumbaya (Rhoads).

Pichincha, 1♂, 1 ♀; Tumbaco, 4♂, 2 ♀.

RANGE.—Arid Temperate Zone from northern Ecuador south (in summer) to central Chile.

I saw several individuals of this species near the Equator north of Pomasqui. This is the most northern record known to me. It is probable that the species does not cross the Guallabamba Valley.

(1075) **Agyrtria viridiceps** (Gould)

Thaumatias viridiceps GOULD, P. Z. S., 1860, p. 307 (Ecuador).

Agyrtria viridiceps, B. & T., 1883, p. 568 (Chimbo); HART., 1898, p. 496 (Paramba); S. & F., 1900, p. 11 (Intac); OBERH., 1902, p. 316 (Santo Domingo); SIMON, 1907, p. 18 (Guala; Vines).

Rio de Oro, 1 ♀; Naranjo, 1♂; La Chonta, 1♂; Punta Santa Ana, 1 ♀; Las Piñas, 1 ♀.

RANGE.—Tropical Zone; western Ecuador and southwestern Colombia.

Very near *A. milleri*, and perhaps only racially distinguishable. The specimen from Las Piñas has the lateral rectrices more definitely barred than most examples of *milleri*.

(1085) ***Agyrtia apicalis* (Gould)**

Thaumatias apicalis GOULD, Introd. Trochil., 1861, p. 154 (Bogotá).

Chionomesa apicalis, SIMON, Syn. Trochil, 1921, p. 320 (Rio Pastassa; two specimens in Rothschild Coll.).

RANGE.—Eastern Colombia and eastern Ecuador.

We have not found this species.

(1086) ***Agyrtia fluviatilis fluviatilis* (Gould)**

Thaumatias fluviatilis GOULD, Introd. Trochil., 1861, p. 154 (Napo, Ec.).

Agyrtia fluviatilis, S. & F., 1900, p. 11 (Gualaquiza; Valle de Zamora); OBERH., 1902, p. 316 (Archidona).

Zamora, 3 ♀.

RANGE.—Tropical Zone: the species, southeastern Colombia to northeastern Peru and Rio Tocantins; the race, Colombia and Ecuador.

(1090) ***Polyerata amabilis* (Gould)**

Trochilus (?) *amabilis* GOULD, P. Z. S., 1851, p. 115 (New Grenada).

Juliamyia amabilis, SCL., 1860e, p. 296 (Esmeraldas).

Agyrtia amabilis, OBERH., 1902, p. 316 (near Guayaquil).

Esmeraldas, 6 ♂, 2 ♀; Duran, 1 ♂.

RANGE.—Tropical Zone; Nicaragua to western Ecuador.

(1091a) ***Polyerata rosenbergi* Bouc.**

Polyerata rosenbergi BOUC., Gen. Hummingbirds, 1895, p. 399 (Rio Dagua, Col.).

Polyerata reini BERL., Orn. Monatsb., 1897, p. 58 (w. Ecuador).

Agyrtia rosenbergi reini, HART., 1898, p. 496 (Cachavi).

Rio Sapoya, 1 ♀.

RANGE.—Tropical Zone; northwestern Ecuador and western Colombia.

Five males from Barbacoas, in southwestern Colombia, agree with topotypes of *rosenbergi*, thus confirming Hellmayr's belief in the non-validity of *reini* (see P. Z. S., 1911, p. 1181).

NOTE.—A specimen of *Lepidopyga goudoti* (Bourc.) of the Ibagüe region in Colombia was found on an Indian necklace at Santo Domingo de los Colorados by Goodfellow. It was said to have been shot in the vicinity, but I agree with Oberholser that the skin probably came from Colombia (see Proc. U. S. N. M., XXIV, 1902, p. 316).

(1105) *Saucerottia edward* (Delatt. & Bourc.)

T[rochilus] edward DELATT. & BOURC., Rev. Zoöl., 1846, p. 308 ("Patrie: Isthmus of Panama").

Saucerottia edward, OBERH., 1902, p. 316 (Santo Domingo).

RANGE.—Panama to northwestern Ecuador.

Known from Ecuador only on the basis of two specimens in the Goodfellow collection recorded by Oberholser. We have a specimen from Capeti, Darien, but the species does not appear to have been recorded from western Colombia.

(1112) *Amazilia tzacatl jucunda* (Heine)

Eranna jucunda HEINE, J. f. O., XI, 1863, p. 188 (Babahoyo, Ec.).

Amazilia riefferi, SCL., 1859a, p. 145 (Pallatanga); 1860c, p. 94 Nanegal; Perucho); 1860d, p. 283 (Babahoyo); 1860e, p. 296 (Esmeraldas); S. & F., 1900, p. 11 (Niebli; Playas; Vines).

Amazilia riefferi jucunda, B. & T., 1883, p. 568 (Chimbo); 1884, p. 306 (Cayan-deled; Pinampungu).

Amazilia fuscicarudata jucunda, HART., 1898, p. 496 (Chimbo); SIMON, 1907, p. 18 (all localities in the western and interandine regions).

Junction Chanchan and Chiguancay; Bucay; Huigra; Chunchi; Pagma forest (Rhoads).

Esmeraldas, 2♂, 3♀; Rio de Oro, 2♂; Duran, 1♂; Bucay, 2♂; Naranjo, 2♀; Coco and Chimbo, 1♀; Huigra, 1♂; Rio Jubones, 1♂; Santa Rosa, 2♂, 1♀; Portovelo, 10♂, 6♀; Zaruma, 1♂; Punta Santa Ana, 2♀; Rio Pindo, 1♂; Las Piñas, 2♂; Salvias, 1♀; Cebollal, 2♂; Alamor, 3♂, 3♀; Guainche, 2♂, 2♀.

RANGE.—Tropical Zone: the species, western Ecuador to Mexico; the race, western Ecuador and southwestern Colombia. (See Bull. A. M. N. H., XXXVI, 1917, p. 288.)

(1116) *Amazilia amazilia dumerili* (Less.)

Ornismya dumerili LESS., Hist. Nat. Colibris, Suppl., 1832, p. 172, pl. xxxvi ("Provinces septentrionales du Chile" = western Ecuador Auct.).

Amazilia dumerili, SCL., 1860d, p. 283 (Babahoyo); LAW., 1869, p. 237 (Puna Is.); B. & T., 1883, p. 568 (Guayaquil); 1885, p. 105 (Yaguachi); S. & F., 1900, p. 11 (Playas; Babahoyo; Savana di Guayaquil; Vines; Balzar).

Amazilia leucophæa, Tacz., 1877, p. 327 (Tumbez.).

Amizilis dumerilii, OBERH., 1902, p. 317 (Santo Domingo).

Esmeraldas, 2♀; Chone, 6♂, 2♀; Daule, 1♂; Duran, 4♂, 1♀; Santa Elena, 1♂; Chongoncito, 3♂, 4♀; Guayaquil, 1; Puna, 4♂, 4♀; Santa Rosa, 5♂, 1♀; Guainche, 1♀; Cebollal, 1♀ (intermediate toward *alticola*); Rio Pullango, 2♂. Peru: Milagros, 1♂; Paletillas, 4♂ (intermediate toward *alticola*).

RANGE.—Arid Tropical Zone of the Pacific coast region of Ecuador and extreme northwestern Peru.

The geographic variations of *Amazilia amazilia* in the region lying between Ica, Peru, and Esmeraldas, Ecuador, are well shown by our series of 140 specimens. At the north we have a bird with but a limited amount of green on the throat, a large white patch on the chest, a bronze-green rump, upper tail-coverts, and tail; at the south, a bird with the throat and breast green, no white chest-patch; the rump, upper tail-coverts, and all but the greenish tips of the central tail-feathers cinnamon-rufous. The differences between these extremes are striking and, in degree, specific, but they are completely bridged by geographic variation.

The green-tailed northern bird (typical *dumerili*) remains true to type throughout western Ecuador north of Santa Rosa and on the Pacific slope south of Santa Rosa to the Peruvian boundary, near which (Cebollal; Paletillas) specimens occur with a trace of rufous in the upper tail-coverts and a decided amount of rufous in the rectrices. As we proceed southward, the amount of rufous increases, and from Lamor, Chilaco, and Sullana it occupies the rump and upper tail-coverts and all the tail, except the ends of the central feathers. So far as these markings are concerned, these specimens are like those from the southern end of the region represented by our series (Lima to Ica), but the white breast-patch is as large as in western Ecuadorean birds (*dumerili*); nor does this patch show any evident and constant decrease in size until we reach Huacho in the province of Lima; while at Huaral and Lima, in the same province, and at Pisco and Ica it is either almost or wholly absent. To these southern, green-breasted birds the name *Amazilia amazilia amazilia* is evidently applicable.

Returning to Santa Rosa in southwestern Ecuador, we cross the West Andes to find that all the specimens from east of the range have more or less rufous in the tail and traces of it in the upper tail-coverts which, however, are still greenish. This form extends to Loja and even over the East Andes to Zamora. In northern Peru it passes (Lamor specimens are intermediate) into the white-breasted form with rufous rump, upper tail-coverts and tail.

It seems clear, therefore, that our material represents but one racially variable species to which the specific name *amazilia* is applicable.

The northern form, as I have already stated, is *amazilia dumerili*. The intergrade between *dumerili* and the white-breasted form with rufous rump, upper tail-coverts and tail, occupying the interior of southern Ecuador, is evidently *amazilia alticola*. The coastal form of northwestern Peru south to Huacho agrees in color and markings with

a specimen in the Elliot collection (Amer. Mus. Nat. Hist. No. 38618) labeled "*Amazilia leucophæa*; a type; Arequipa; Warszewicz," but its range is widely separated from the Arequipa region by that of *amazilia amazilia* and the name *leucophæa* cannot definitely be applied to northwest Peruvian birds until their identity with specimens from the Arequipa region has been proved.

Representing individual variation we have a male from Loja with only a trace of rufous in the tip of the outer rectrices, and a female from Zamora with practically no rufous on the tail. On the other hand, a specimen collected by P. O. Simons at Chongon, near Guayaquil, has the three outer pairs of rectrices almost wholly rufous.

(1117) ***Amazilia amazilia alticola* Gould**

Amazilia alticola GOULD, P. Z. S., 1860, p. 309 ("Puna district of Peru"); SALVAD., Cat. Bds. B. M., XVI, 1892, p. 206 (Loxa; Intac).

Portovelo, 4♂, 1♀; Rio Pindo, 1♂; Casanga, 1♂; Lunamá, 2♂, 1♀; Guainche, 3♂, 1♀ (intermediate toward *dumerili*); Loja, 2♂, 1♀; Zamora, 2♂, 1♀; Sa-banilla, 1♀.

RANGE.—Tropical Zone of the interior of southern and southeastern Ecuador and adjoining parts of northern Peru.

The relationships of this race are discussed under the preceding form.

(1119) ***Hylocharis grayi* (Delatt. & Bourc.)**

Trochilus grayi DELATT. & BOURC., Rev. Zoöl., 1846, p. 307 (Popayán).

Eucephala grayi, S. & F., 1900, p. 11 (La Concepcion); SIMON, 1907, p. 19 (Bahoyo; Vinces; Chones; Nanegal; Chota; Tulcan; San Gabriel; Otavalo).

Hylocharis grayi, OBERH., 1902, p. 317 (Chota Valley, not nearer Quito; La Juna, n. Ec.).

'Quito,' 6♂, 2♀.

RANGE.—Arid areas at subtropical and upper tropical elevations, northern Ecuador to the Cauca Valley, Colombia.

(1120) ***Hylocharis humboldti* (Bourc. & Muls.)**

Trochilus humboldti BOURC. & MULS., Ann. Soc. Agric. Lyon, Ser. 2, IV, p. 142 (Esmeraldas, Ec.).

Esmeraldas, 1♂, 1♀.

RANGE.—Tropical Zone; Pacific coast from northwestern Ecuador to Buena-ventura.

(1129) *Chrysuronia æone ænone* (Less.)

Ornismya ænone LESS., Hist. Nat. Colibris, Suppl., 1832, p. 157, pl. xxx ("Cette espèce habite la Trinité").

Chrysuronia ænone, SCL., 1854, p. 111 (Quijos); 1858b, p. 460 (Zamora); S. & F., 1900, p. 11 (Valle del Santiago).

Chrysuronia ænone ænone, OBERH., 1902, p. 317 (Archidona; Baeza; Rio Napo).

Chrysuronia ænone brevirostris MADAR., Orn. Monatsb., XIX, 1911, p. 32 (Ecuador).

Zamora, 2♂, 3♀; below San José, 1♂, 5♀. Peru: Pomará, Marañon, 3♂; Marañon, 6♂.

RANGE.—Tropical Zone: the species, eastern Venezuela to the upper Amazon.

With some 40 specimens of this species before me, covering its range from northeastern Venezuela to the Marañon, I see no racial variations worthy of recognition by name. *Chrysuronia josephinae* of eastern Peru and Bolivia, I consider specifically distinct. *Chrysuronia ænone azurea* Simon (Nat. Hist. Trochil., pp. 88, 307) said to be from Paramba, northwestern Ecuador, is unknown to me. I find it difficult to believe that the locality is correct.

(1133) *Chlorestes notatus* (Reichenb.)

Trochilus notatus REICHENB., Mag. des Tier. (Erlange), I, Abth. 3, 1795, p. 129 (Cayenne).

Eucephala cærulea, SALV., Cat. Bds. B. M., XVI, 1892, p. 241 (east Ecuador).

Chlorestes notatus, SIMON, Hist. Nat. Trochil., 1921, p. 308 (Sarayacu).

RANGE.—Northern South America east of the Andes from the upper Amazon to eastern Brazil and the Guianas.

We have no specimens from Ecuador.

(1137) *Damophila juliae felicianae* (Less.)

Ornismya felicianae LESS., Rev. Zoöl., 1844, p. 433 (Guayaquil, Ec.).

Juliamyia typica, SCL., 1860d, p. 283 (Babahoyo); 1860e, p. 296 (Esmeraldas).

Juliamyia felicianae, Tacz., 1877, p. 332 (Palma); B. & T., 1883, p. 568 (Chimbo), 1884, p. 306 (Bugnac).

Damophila juliae felicianae, HART., 1898, p. 494 (Chimbo); OBERH., 1902, p. 318 (Santo Domingo).

Damophila juliae, S. & F., 1900, p. 11 (Playas; Babahoyo; Savana di Guayaquil; Vines; Rio Peripa).

Damophila juliae felicianae, SIMON, 1907, p. 19 (Babahoyo; Vines; Palenque; Guapulo (!)).

Bucay (Rhoads).

Esmeraldas, 3♂, 7 ♀; Chone, 3♂, 3 ♀; Bahia de Caraques, 1♂; Duran, 7♂, 2 ♀; Naranjo, 1♂; Bucay, 1♂, 2 ♀; Chimbo, 1♂, 1 ♀; Rio Jubones, 8♂, 2 ♀; Santa Rosa, 1 ♀; La Puente, 2♂, 1 ♀; Punta Santa Ana, 2 ♀; Cebollal, 3♂; Las Piñas, 1♂.

RANGE.—Tropical Zone: the species, western Ecuador and Colombia to Chiriqui; the race, western Ecuador.

(1144) ***Chlorostilbon melanorhynchus melanorhynchus* Gould**

Chlorostilbon melanorhynchus GOULD, P. Z. S., 1860, p. 308 (vicinity of Quito); B. & T., 1883, p. 568 (Chimbo); OBERH., 1902, p. 318 ("Jombaco" [=Tumbaco], Chillo Valley); SIMON, 1907, p. 19 (Chota; Guapulo; Pilo; Tumbaco; Cumbaya; Guaillabamba; Yaruqui; Puembo; Iliniza and eastern region, Napo).

Chlorostilbon pumilus, S. & F., 1900, p. 12 (Ibarra; La Concepcion; Niebli; Valle de Chillo).

Cumbaya (Rhoads).

Tumbaco, 3♂, 3 ♀; Cumbaya, near Quito, 5♂, 2 ♀.

RANGE.—The species, Tropical to Temperate Zone, Ecuador and Colombia; the race, Temperate Zone in Ecuador north into Colombia.

Specimens from the Tropical and lower Subtropical Zone are slightly smaller and have shorter, more slender bills than those from the tableland and, I assume, represent *pumilus*. The difference, however, does not hold for Colombian specimens, some of which may be referred to *pumilus*, some to *melanorhynchus*. Simon meets this difficulty by describing the western Colombian bird as *perviridis*, and referring all other Colombian specimens to *pumilus*, a far from natural distribution if we call the form from tropical western Ecuador *pumilus*. The case well illustrates the situation created by the attempt to recognize variations which are too slight to be diagnostic.

(1145) ***Chlorostilbon melanorhynchus pumilus* Gould**

Chlorostilbon pumilus GOULD, Ann. & Mag. Nat. Hist., IX, 1872, p. 195 (Citado, Ec.); OBERH., 1902, p. 318 (near Guayaquil).

Chlorostilbon atala, SCL., 1859a, p. 145 (Pallatanga).

Chlorostilbon melanorhynchum, B & T, 1884, p. 306 (Cayandeled).

Bucay; Junction Chanchan and Chiguancay; Huigra; Chunchi (Rhoads).

Naranjo, 1♂; Rios Coco and Chimbo, 3♂.

RANGE.—Tropical and Subtropical Zones, western Ecuador northward into Colombia.

See my comments on the preceding race.

(1150) ***Chlorostilbon daphne daphne* Gould**

Chlorostilbon daphne GOULD, Introd. Trochil., 1861, p. 177 ("Pampas del Sacramento").⁹

Chlorostilbon prasinus daphne, OBERH., 1902, p. 318 (Archidona).

Rio Suno, 2♂, 1♀; below San José, 2♂.

RANGE.—Tropical Zone: the species, upper Amazon east to the Guianas; the race, upper Amazon.

According to Simon this species is not even generically related to *C. prasinus*. Having no topotypical specimens of the last-named species, I am unable to present an independent opinion.

(1151) ***Chlorostilbon vitticeps* (Simon)**

Prasitis vitticeps SIMON, Rev. Franc. d'Orn., 1910, No. 17, p. 263 (Napo, e. Ec.).

RANGE.—Known only from the "Napo" region of Ecuador.

I am not familiar with this species.

(1158) ***Chlorostilbon stenurus* (Cab. & Heine)**

Panychlora stenura CAB. & HEIN., Mus. Hein., III, 1860, p. 50 (Mérida).

Chlorostilbon stenurus, OBERH., 1902, p. 318 (Baeza).

RANGE.—Subtropical Zone; eastern Ecuador to Venezuela.

We have no specimens from Ecuador.

(1167) ***Thalurania hypochlora* Gould**

Thalurania hypochlora GOULD, P. Z. S., 1870, pp. 803, 804 (Citado, Ec.); B. & T., 1883, p. 567 (Chimbo); OBERH., 1902, p. 318 (Gualea).

Thalurania verticeps hypochlora, SIMON, 1907, p. 19 (Gualea).

Bucay; junction Chanchan and Chiguancay (Rhoads).

Naranjo, 3♂, 2♀; Bucay, 2♂; Santa Rosa, 2♂, 2♀; La Chonta, 1♂, 3♀; Las Piñas, 1♂.

RANGE.—Tropical Zone, western Ecuador.

Simon treats this species as a variety of *verticeps*, but wholly aside from the marked difference in the color of the males, *hypochlora* having the abdomen as well as throat green, the female of *verticeps* (and also of *v. fannyi*) has the abdomen smoky, washed with greenish, instead of the color of the breast.

Records of this species from the Napo region are doubtless erroneous.

NOTE.—The skin of the unique type of *Thalurania chlorocephala* (Bourc.), described from Guaranda, western Ecuador (Rev. et Mag., 1854, p. 457), is said by Simon and Hellmayr to be of Rio make (Nov. Zoöl., XV, 1908 p. 8).

(1168) **Thalurania fannyi fannyi** (Delatt. & Bourc.)

Trochilus fannyi DELATT. & BOURC., Rev. Zoöl., 1846, p. 310 (Rio Daigua near Buenaventura).

Thalurania fannyi, HART., 1898, p. 494 (Chimbo; Paramba); OBERH., 1902, p. 319 (Nanegal; Gualea; Milligalli).

Thalurania fannyæ, S. & F., 1900, p. 5 (Rio Peripa); SIMON, 1907, p. 19 ("Lloa"). Rio de Oro, 1 ♀.

RANGE.—Tropical Zone; western Ecuador to eastern Panama.

We have only a female from Ecuador but an excellent series from western Colombia and eastern Panama, including three males and three females from Buenavista, Nariño. The Rio de Oro female agrees with Colombian specimens in having the abdomen smoky, washed with green, and sharply defined from the grayish breast.

(1169) **Thalurania fannyi verticeps** (Gould)

Trochilus (Thalurania) verticeps GOULD, Jard. Cont. Orn., 1851, pl. 107, p. 79 ("Quito").

Thalurania verticeps, SCL., 1860c, p. 95 (Nanegal; above Puellaro); SIMON, 1907, p. 19 (Napo; Santo Domingo).

"Quito," 3 ♂.

RANGE.—Subtropical Zone (?), Ecuador and western Colombia.

Unfortunately, we have no specimens of this species from definite localities in Ecuador, and I can, therefore, add nothing to the views expressed in my paper on Colombian birds (p. 292).

Simon, it will be observed, records this species from the Napo region, and in view of its close relationship to *eriphile* it may occur there.

(1174) **Thalurania nigrofasciata** (Gould)

Trochilus? nigrofasciata GOULD, P. Z. S., 1846, p. 89 (Rio Negro).

Thalurania viridipectus, SCL., 1854, p. 111 (Quijos).

Thalurania tshudii, SCL., 1858b, p. 460 (Gualaquiza; Zamora).

Thalurania nigrofasciata, S. & F., 1900, p. 5 (Valle de Zamora); OBERH., 1902, p. 319 (Archidona).

Zamora, 3 ♂, 2 ♀; Guayaba, 1 ♂; Macas region, 1 ♂; near Sarayacu, 1 ♂; Rio Suno, 6 ♂, 2 ♀; below San José, 1 ♂, 3 ♀.

RANGE.—Tropical Zone; upper Amazonia.

A member of a group covering the greater part of tropical America.

(1186) *Chalybura intermedia* E. & Cl. Hart.

Chalybura intermedia E. & CL. HART., Nov. Zoöl., I, 1894, p. 44 (Ecuador).

Santa Rosa, 1 ♂; Zaruma, 10 ♂, 1 ♀; Portovelo, 8 ♂, 6 ♀; Punta Santa Ana, 4 ♂; Rio Pindo, 2 ♂; Las Piñas, 4 ♂, 2 ♀; Guainche, 5 ♂, 2 ♀; Rio Pullango, 1 ♂; Alamor. 3 ♂, 6 ♀; Cebollal, 4 ♂, 1 ♀.

RANGE.—Chiefly Subtropical Zone; southwestern Ecuador.

The male resembles *Chalybura caeruleogaster* but has the mandible flesh-color, except apically; the breast greener, the grayish edging to the feathers of the underparts more pronounced. The two, however, are sufficiently alike to be representative forms, though one is known only from southwestern Ecuador, the other from eastern Colombia. The female differs from a 'Bogotá' female of *caeruleogaster* only in having the central rectrices less green.

(1187) *Chalybura urochrysa* (Gould)

Hypuroptila urochrysa GOULD, P. Z. S., 1861, p. 198 ("Panama" ?; cf. HELLM., P. Z. S., 1911, p. 1184).

Chalybura urochrysa, HART., 1898, p. 494 (Cachaví).

RANGE.—Tropical Zone; northwestern Ecuador and western Colombia.

We have specimens from Barbacoas in southwestern Colombia but none from Ecuador. The representative in Panama is *C. isauræ* (see Chapm., Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 293.).

(1188) *Colibri delphinæ* (Less.)

Ornismya delphinæ LESS., Rev. Zoöl., 1839, p. 44 (loc. unknown).

Petasophora delphinæ, HART., 1898, p. 496 (Paramba; Ibarra); SALVIN., Cat. Bds. B. M., XVI, 1892, p. 112 (Quito; Sarayacu).

Colibri delphinæ, OBERH., 1902, p. 319 (Mindó; Gualea).

Valle de Cumbaya, 1 ♂, 1 ♀; below Oyacachi.

RANGE.—Peru to Guatemala and the Guianas; chiefly Tropical Zone but ranging upward to the Temperate Zone.

(1189) *Colibri cyanotus* (Bourc. & Muls.)

Trochilus cyanotus BOURC. & MULS., Ann. Sci. Phys. et Nat. Lyon, VI, 1843 p. 41 (Caracas, Ven.).

Petasophora cyanotis, SCL., 1859a, p. 145 (Pallatanga); B. & T., 1884, p. 303 (Cayandedé; Cechce); HART., 1898, p. 495 (Ibarra); S. & F., 1900, p. 9 (La Concepcion); SALVAD., Cat. Bds. B. M., XVI, 1892, p. 111 (Baños).

Colibri cyanotus, OBERH., 1902, p. 319 (Baeza).

Junction Chanchan and Chiguancay; Pagma forest (Rhoads).

El Chiral, 1 ♀; Sabanilla, 1 ♂; below Oyacachi, 1 ♂; Baeza, 1 ♀; below San José, 1 ♀.

RANGE.—Subtropical Zone; Bolivia to Venezuela; western and eastern Ecuador.

(1190) *Colibri iolata* (Gould)

Petasophora iolata GOULD, P. Z. S., 1847, p. 9 (Bolivia); SCL., 1858b, p. 459 (Cuenca; Gualaquiza); 1858c, p. 555 (Riobamba; Guano); 1958a, p. 145 (Pallatanga); 1860b, p. 81 (Lloa); 1860c, p. 94 (Calacali; Perucho; Puellarro and above); HART., 1898, p. 495 (Lake Yaguarcocha; Ibarra; Cayambe; highlands of Quito); S. & F., 1900, p. 8 (forests near Rio Zamora; near Quito; Calacali; Lloa; Valle di Chillo).

Petasophora anais, LAW., 1869, p. 237 ("Puna Is."); B. & T., 1884, p. 303 (Cechce; Alausi); 1885, p. 104 (Chimborazo; Baños).

Colibri iolatus, OBERH., 1902, p. 320 (Chillo Valley; Jambillo [= Tambillo ?]; Aloag; Quito; Papallacta; Vallevicioso; Japlon).

Huigra; Chunchi; Riobamba; Cajabamba; Cumbaya; Hacienda Garzon (Rhoads).

Pomasqui, 2 ♂; Guapulo, 2 ♂; Tumbaco, 3 ♂, 1 ♀; El Paso, 1 ♂; Salvias, 4 ♂; San Bartolo, 1 ♂; Celica, 1; Loja, 1 ♂; Zamora, 9 ♂, 4 ♀; Sabanilla, 1 ♂, 1 ♀; Guayaba, 1 ♀.

RANGE.—Subtropical to arid Temperate Zones.

It is surprising to find that specimens from the arid plains of Pomasqui resemble those from Zamora. Stability under such widely different conditions explains why, in spite of its wide range, no races of this species are recognized.

Colibri buckleyi Gould, described from Misqui, Bolivia, and recorded from Puenbo, Chillo Valley, by Oberholser (Proc. U. S. Nat. Mus., XXIV, 1902, p. 320) is believed to be a color phase of *C. iolata*.

(1194) *Anthracothorax nigricollis nigricollis* (Vieill.)

Trochilus nigricollis VIEILL., Nouv. Dict. d'Hist. Nat., VII, 1817, p. 349 (Brazil).

RANGE.—Tropical Zone; Paraguay to Panama, the Guianas and Trinidad.

Both Ridgway and Simon mention eastern Ecuador as a part of the range of this species, but we have no specimens from that region.

(1195) *Anthracothorax nigricollis iridescens* (Gould)

Lampornis iridescens GOULD, Introd. Trochil., 1861, p. 65 (Guayaquil); TACZ., 1877, p. 745 (Lechugal); B. & T., 1883, p. 566 (Guayaquil); S. & F., 1900, p. 4 (Vinces; Balzar).

Lampornis mango, SCL., 1860d, p. 284 (Babahoyo).

Anthracothonax violicaudus iridescens, OBERH., 1902, p. 321 (vicinity of Nanegal). Esmeraldas, 5 ♂, 4 ♀; La Plata Is., 3 ♂, 1 ♀; Guayaquil, 1 ♀; Duran, 1 ♂; Puna Is., 4 ♂, 5 ♀; Santa Rosa, 1 ♀.

RANGE.—Equatorial Arid Fauna of Ecuador.

We have no specimens of this species from either eastern Ecuador or the Marañon Valley. This race, therefore, appears to be isolated in western Ecuador.

(1208a) ***Topaza pella pamprephta* Oberh.**

Topaza pella pamprephta OBERH., Proc. U. S. N. M., XXIV, 1902, p. 321 (Suno; Rio Napo, Ec.).

RANGE.—Tropical Zone: the species, eastern Ecuador to Guianas; the race, eastern Ecuador.

Appears to be known only from the type-locality.

(1209) ***Topaza pyra* (Gould)**

Trochilus (Topaza) pyra GOULD, P. Z. S., 1846, p. 85 (Rio Negro).

Topaza pyra, SALVAD., Cat. Bds. B. M., XVI, 1894, p. 333 (Rotuno, ex Buckley); OBERH., 1902, p. 322 ("mouth of the Curarai, largest tributary of the Napo").

Napo, 1 ♀.

RANGE.—Tropical Zone; Rio Negro to eastern Ecuador.

(1210) ***Oreotrochilus chimborazo chimborazo* (Delatt. & Bourc.)**

Trochilus chimborazo DELATT. & BOURC., Rev. Zoöl., 1846, p. 305 ("le Chimborazo [Equateur]").

Chimborazo, 16 ♂ ad., 2 ♂ im., 6 ♀.

RANGE.—Upper border of Paramo Zone on Chimborazo.

(1210a) ***Oreotrochilus chimborazo söderstromi* Lönn. & Rendh.**

Oreotrochilus chimborazo söderstromi LÖNN. & RENDH., Arkiv. für Zoöl., Band 14, No. 25, Stockholm, 1922, p. 56 (Quillotoa, Ec.).

This is an intermediate between *chimborazo* and *jamesoni*, described as similar to *jamesoni* but with five or six of the lower throat feathers distinctly but narrowly margined with green. It is based on a single male which its describers suggest may be a hybrid. They think, however, that as this form has a local name ("Pecho blanco zalamala")

and is known from only one locality, it may be valid. The locality whence this form was described is northwest of Ambato, nearly midway between Chimborazo and Cotopaxi, the nearest localities at which *chimborazo* and *jamesoni* are respectively known to occur. It presumably, therefore, does not permit of hybridism but might be expected to produce a geographical intermediate. I understand from Mr. Söderstrom that this form is not uncommon on Quillotoa.

(1211) ***Oreotrochilus chimborazo jamesoni* Jard.**

Oreotrochilus jamesonii JARD., Contrib. to Ornith., 1849, p. 67 (Pichincha, from snow-line down 500 ft.); OBERH., 1902, p. 322 (Pichincha; Antisana; Cotopaxi).

Oreotrochilus pichincha, SCL., 1860b, p. 79 (Guagua and Rucu Pichincha); S. & F., 1900, p. 4 (Pichincha); RHOADS, 1912, p. 146 (Paramo of Pichincha).

Oreotrochilus chimborazo jamesoni, SIMON, 1907, p. 19 (Iliniza; Atacazo).

South Crater Pichincha, 12,500 ft.; south side Pichincha, 13,000 ft. (Rhoads).

Pichincha, 9 ♂ ad., 2 ♂ im., 1 ♀; Antisana, 2 ♂, 1 ♀.

RANGE.—Upper border of Paramo Zone on Pichincha, Antisana, and Cotopaxi. Simon (*loc. cit.*) records this species from Atacazo, but makes no mention of this locality in his monograph.

The genus *Oreotrochilus* finds its northern limit in this species. The distribution of the present race includes both the eastern and western sides of the Andes. The Chimborazo form is obviously representative, and if *söderstromi* is a valid race it apparently bridges the difference between *jamesoni* and *chimborazo*.

(1218) ***Urochroa bougueri bougueri* (Bourc.)**

Trochilus bougueri BOURC., Compt. Rend., Ac. Sci., XXXII, 1851, p. 186 ("Habite les grands bois—regions chaudes—de Nanegan").

Urochroa bougueri, SCL., 1860c, p. 95 (Nanegal); OBERH., 1902, p. 323 (Guailabamba, 7,000 ft.).

Nanegal, 1 (type).

RANGE.—Subtropical Zone; northwestern Ecuador and southwestern Colombia.

Bourcier's type in the Elliot collection (Amer. Mus. Nat. Hist., No. 37458) is our only specimen from western Ecuador. It is an apparently nearly adult bird and differs from a series of *bougueri leucura* in having the outer tail-feathers wholly blue-black except at the basal third, which is white, a decidedly wider chestnut line from the base of the bill, the breast more purple, and the upperparts more coppery. While these differences may be due in part to immaturity, they are, in my opinion, largely racial and indicate that there are two forms of this bird in Ecuador.

(1219) *Urochroa bougueri leucura* Lawr.

Urochroa leucura LAWR., Ann. Lyc. Nat. Hist. N. Y., VIII, 1864, p. 43 (Ecuador).

Urochroa bougueri, SALV., Cat. Bds. B. M., XVI, 1892, p. 301 (Baños; Sarayacu; Napo).

"Ecuador," 1 (type of *Urochroa leucura* LAWR.); below Oyacachi, 4 ♂, 2 ♀.

RANGE.—The species, northern Ecuador and southern Colombia; the race, eastern Ecuador (Subtropical Zone).

Lawrence's type (Amer. Mus. Nat. Hist., No. 46474) agrees with females from Oyacachi. In this sex the breast is slightly bluer and less brilliant, it is smaller, and the outer rectrix not so widely margined with black as in the male. All but one of our specimens show at least a trace of the rufous cheek-mark, and all have the outer rectrix largely white.

(1222) *Polyplancta aurescens* (Gould)

Trochilus (Lampornis) aurescens GOULD, P. Z. S., 1846, p. 88 (Rio Negro).

Clytolæma aurescens, OBERH., 1902, p. 323 (Napo village).

Below San José, 2 ♂, 2 ♀.

RANGE.—Tropical Zone; upper Amazonia.

(1224) *Phaiolaima rubinoides æquatorialis* Gould

Phæolæma æquatorialis GOULD, Mon. Trochil, IV, 1860, p. 269 pl. 264 (Ecuador); SCL., 1860a, p. 70 (Pallatanga); B. & T., 1884, p. 303 (Cayandedel).

Phaiolaima æquatorialis, OBERH., 1902, p. 323 (Canzacota).

Gualea, 1 ♂, 2 ♀; above Bucay, 1 ♀, 1 ?; El Chiral, 2 ♂; Zaruma, 2 ♀; Punta Santa Ana, 1 ♀.

RANGE.—Subtropical Zone: the species, Ecuador and Colombia; the race, western Ecuador and western Colombia.

(1225) *Phaiolaima rubinoides cervinigularis* Salv.

Phæolæma cervinigularis SALV., Cat. Bds. B. M., XVI, 1892, p. 325 (Ecuador?).

Phaiolaima cervinigularis, OBERH., 1902, p. 323 (Baeza; Cosanga, below Baeza).

Baeza, 3 ♀; below Oyacachi, 1 ♂. Peru: Chelpe, Prov. Junin, 1 ♂; Chaupe, 6 ♀.

RANGE.—Subtropical Zone: eastern Andes of Ecuador and Peru.

I have already given evidence indicating the intergradation of *rubinoides* and *æquatorialis*, and there seems to be no reason why the former should not intergrade with *cervinigularis* in southeastern Colombia. The characters of the present form are well given by Oberholser (*loc. cit.*).

(1226) **Placophorus¹ gularis** (Gould)

Aphantochroa gularis GOULD, P. Z. S., 1860, p. 310 (Napo).

Below San José, 1 ♂, 5 ♀.

RANGE.—Tropical Zone; eastern Ecuador and northeastern Peru.

(1228, 1229, 1230) **Heliodoxa leadbeateri** (Bourc. & Muls.)

Trochilus leadbeateri BOURC. & MULS., Ann. Sci. Phys. et Nat. Lyon, VI, 1843, p. 43 (Caracas).

Heliodoxa leadbeateri, OBERH., 1902, p. 324 (Archidona; Baeza).

Below Oyacachi, 7 ♂, 3 ♀; Baeza, 1 ♀; Rio Sardinas, 1 ♂.

RANGE.—Subtropical Zone; western Venezuela, Colombia, eastern Ecuador to Bolivia.

With forty-odd specimens of this species from throughout its range, I can find no constant racial characters. The range given by Simon to *H. l. parvula* Berl. is in part also accorded to true *leadbeateri*, indicating that the former is based on individual rather than geographic variation (see also Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 296).

Four of our Ecuadorean birds, labeled by the collector as female and measuring smaller than the male, have a well-developed bluish crown-patch, a character to which Salvin calls attention as distinctive of old birds.

(1232) **Heliodoxa jacula jamesoni** (Bourc.)

Trochilus jamesoni (err. typ.) BOURC., Compt. Rend., Acad. Sci., XXXII, 1851, p. 187 (Valle chaude de Calacoli [= Calacali ?], Ec.).

Heliodoxa jamesoni, SCL., 1860c, p. 94 (Nanegal); B. & T., 1883, p. 567 (Chimbo); 1884, p. 304 (El Placer); S. & F., 1900, p. 4 (Rio Peripa); SIMON, 1907, p. 19 (Santo Domingo; Nono).

Heliodoxa jacula jamesoni, HART., 1898, p. 494 (Cachaví; Chimbo).

Heliodoxa jacula jamesoni, OBERH., 1902, p. 324 (Santo Domingo).

Bucay; junction Chanchan and Chiguancay (Rhoads).

Pato de Pájaro, 1 ♀; Bucay, 1 ♀; above Bucay, 2 ♂, 3 ♀; La Chonta, 1 ♀; Santa Rosa, 1 ♂, 2 ♀.

RANGE.—The species, western Ecuador, Colombia, western Panama, and Costa Rica; the race, western Ecuador, chiefly lower Subtropical Zone.

(1235) **Ionolaima schreibersii** (Bourc.)

Trochilus schreibersii BOURC., P. Z. S., 1847, p. 43 (Loddiges manuscript; upper Rio Negro, Brazil).

Iolæma schreibersi, SCL., 1854, p. 111 (Quijos).

Ionolaima schreibersii, OBERH., 1902, p. 324 (Baeza).

Rio Suno, 4 ♂, 2 ♀; below San José, 1 ♂, 3 ♀.

RANGE.—Tropical Zone; upper Amazonia.

¹ See Simon, Hist. Nat. Trochil., 1921, p. 341.

(1238) *Eugenia imperatrix* Gould

Eugenia imperatrix GOULD, P. Z. S., 1855, p. 92 ("Environs of Quito"); OBERH., 1902, p. 325 (Gualea); SIMON, 1907, p. 19 (Santo Domingo; Gualea); SALV., Cat Bds. B. M., XVI, 1892 (Intac—Buckley; environs of Quito—Jameson).

"Quito," 2 ♂, 1 ♀.

RANGE.—Ecuador; probably Subtropical Zone on Pacific slope.

We have only native-made skins of this species.

(1246) *Helianthea lutetiæ* (Delatt. & Bourc.)

Trochilus lutetiæ DELATT. & BOURC., Rev. Zoöl., 1846, p. 307 (Puracé, Col.).

Helianthea lutetiæ, SCL., 1860b, p. 81 (Lloa); B. & T., 1885, p. 105 (Puela); S. & F., 1900, p. 9 (Frutillas; forest w. slope Corazon; Papallacta); SIMON, 1907, p. 19 (crit.).

Helianthea lutetiæ lutetiæ, OBERH., 1902, p. 325 (Atacazo; Quito; Pichincha, 9,000 to 12,000 ft.).

Helianthea hamiltoni GOODF., Bull. B. O. C., X, 1900, p. xlviii (Papallacta).

Helianthea lutetiæ hamiltoni, OBERH., 1902, p. 325 (Papallacta).

Pichincha, 4 ♂, 2 ♀; Papallacta, 2 ♂, 2 ♀; Oyacachi, 2 ♂, 1 ♀; upper Sumaco, 6 ♂, 5 ♀; above Macas, 1 ♂.

RANGE.—Temperate Zone; East and West Andes in Ecuador; Central Andes in Colombia.

The males above listed are not distinguishable from western Andean specimens, and thus do not confirm the characters attributed to the eastern Andean bird. Females from Papallacta, however, have the throat deeper ochraceous than those from Pichincha and thus agree with Oberholser's description of *hamiltoni*. They are, however, not separable from a female from Almaguer, Colombia, which is essentially topotypical of *lutetiæ*. If, therefore, it should be necessary to recognize two forms of this species (and our material does not in my opinion warrant this proceeding), the bird of west, not of east Ecuador, should bear the new name.

(1250) *Helianthea torquata* (Boiss.)

Ornismya torquata BOISS., Rev. Zoöl., 1840, p. 6 (Bogotá).

Bourcieria torquata, B. & T., 1885, p. 105 (Baños); S. & F., 1900, p. 10 (Pun).

Helianthea torquata, OBERH., 1902, p. 325 (Baeza).

Baeza, 2 ♂, 3 ♀; below Papallacta, 2 ♂; upper Sumaco, 6 ♂, 3 ♀; Zuna, Rio Upano, 1 ♂; above Loja, 1 ♂.

RANGE.—Subtropical Zone; Colombia and eastern Ecuador.

Represented in western Ecuador by the closely allied *H. fulgidigula*.

(1251) *Helianthea fulgidigula* (Gould)

Bourcieria fulgidigula GOULD, Mon. Trochil, IV, 1854, p. 252 (Ecuador); SCL., 1859a, p. 145 (Pallatanga); 1860b, p. 81 (Lloa); B. & T., 1884, p. 304 (Cayandeled; Tribulpata); S. & F., 1900, p. 10 (Pelagallo; Intac); SIMON, 1907, p. 20 (all interandine localities; Santo Domingo).

Helianthea fulgidigula, OBERH., 1902, p. 326 (Canzacota; lower w. Pichincha; lower w. Corazon; Mindo; above Milligalli).

Chunchi; Pagma forest (Rhoads).

Gualea, 4♂, 4♀; Pallatanga, 1♂.

RANGE.—Subtropical Zone; western Ecuador.

(1255) *Helianthea cœligena columbiana* (Elliot)

Lampropygia columbiana ELLIOT, Ibis, 1876, p. 57 (vicinity of Bogotá); B. & T., 1885, p. 105 (Machay; Mapoto).

Cœligena typica, SCL., 1854, p. 111 (Quijos).

Helianthea cœligena columbiana, OBERH., 1902, p. 326 (Baeza).

Oyacachi, 18♂, 3♀; above Baeza, 1♂; Puente del Rio Quijos, 1♂; lower Sumaco, 1♂, 2♀.

RANGE.—Subtropical Zone: the species, Colombia and eastern Ecuador to Bolivia; the race, eastern Colombia and eastern Ecuador to northern Peru.

This species is unknown from western Ecuador. The abdomen in the Ecuadorean specimens averages darker than in true *columbiana* and approaches that of *boliviana*.

(1260) *Helianthea wilsoni* (Delatt. & Bourc.)

Trochilus wilsoni DELATT. & BOURC. Rev. Zool., 1846, p. 305 ("Juntas, près Saint-Bonaventure, Nouvelle-Grenade").

Cœligena wilsoni, SCL., 1859a, p. 145 (Pallatanga); 1860c, p. 94 (Nanegal).

Lampropygia wilsoni, B. & T., 1883, p. 567 (Cayandeled); 1884, p. 304 (Cayandeled; Pedregal); S. & F., 1900, p. 10 (Intac).

Helianthea wilsoni, OBERH., 1902, p. 326 (Milligalli).

Homophania wilsoni, SIMON, 1907, p. 20 (Tumbaco; Mindo; Quito).

Junction Chanchan and Chiguancay (Rhoads).

Gualea, 3♂, 5♀; El Chiral, 3♂, 5♀.

RANGE.—Subtropical Zone; western Colombia and western Ecuador.

(1263) *Diphogena iris iris* (Gould)

Helianthea iris GOULD, P. Z. S., 1853, p. 61 ("Eastern slope of the Andes").

Diphlogæna iris buckleyi BERL., Ibis, 1887, p. 295 (Ecuador).

Diphogena iris, OBERH., 1902, p. 326 (w. Pichincha, 7,500 ft.).

Above Zaruma, 1 ♀; Salvias, 1 ♀; Guachanamá, 1 ♀; Taraguacocha, 5 ♂, 1 ♀; San Bartolo, 1 ♂; Loja, 2 ♂, 1 ♀; Peru: Palambla, 1 ♂; El Tambo, 3 ♂.

RANGE.—Subtropical Zone: the species, southern Ecuador and northern Peru; the race, southern Ecuador south to Palambla, Peru.

The males in this excellent series agree with Gould's description and confirm Simon's belief (Hist. Nat. Trochil., p. 364; footnote) that Gould's type did not come from Bolivia. I have not seen *iris fulgidiceps* Simon from Leimabamba and Levanto, or *iris hypocrita* Simon from the Chachapoyas region.

(1264) *Diphogena hesperus* (Gould)

Diphlogæna hesperus GOULD, Ann. & Mag. Nat. Hist. (3), XV, 1865, p. 129 (Ecuador); SALVIN, Cat. Bds. B. M., XVI, 1892, p. 122 (Cechce; Maraviña).

Diphogena hesperus, OBERH., 1902, p. 326 (Mindo).

"Ecuador," 1 ♂; Narangal-Cuenca (10,000 ft.), 1 ♂; Molletura, (9,000 ft.), 1 ♂.

RANGE.—Cuenca region of Ecuador.

The various species of *Diphogena* seem to be mutually representative, and I doubt, therefore, if any two are found together. If this be true, the range of this species should be wholly north of that of *iris*, when we should have a graded series of forms from *hesperus*, the greenest, to *aurora* of the Marañon Valley, the least green. I doubt the occurrence of this species at Mindo.

(1269) *Lafresnayeia lafresnayi gayi*¹ (Bourc. & Muls.)

Trochilus gayi BOURC. & MULS., Ann. Soc. Agric. Lyon, IX, 1846, p. 325 (no locality; Brabourne and Chubb "designate Venezuela").

Trochilus saül BOURC., Rev. Zool., 1846, p. 309 (vicinity of Quito).

Lafresnaya gayi, SCL., 1860b, p. 81 (Lloa); B. & T., 1884, p. 303 (Cayanded: Chaguarpata); S. & F., 1900, p. 4 (Frutillas).

Lafresnaya saul, OBERH., 1902, p. 327 (Pichincha; Lloa; w. Corazon, above Milligalli, and Papallacta, between 10,000 to 12,500 ft.).

Lafresnaya sanlæ [sic], SIMON, 1907, p. 20 ("Napo").

Chunchi; south foot Pichincha, 10500 ft. (Rhoads).

"Ecuador," 1 (type of *saül*¹); Taraguacocha, 1 ♀; Loja (7,000 ft.), 1 ♂, 2 ♀; above Baeza, 1 ♂, 1 ♀.

RANGE.—Temperate Zone; Mérida, Venezuela, region to central Peru, except East and Central Andes and Santa Marta group of Colombia.

Lafresnayeia contains two forms of which *gayi* has the outer tail-feathers largely white, while in the other (*lafresnayi*) they are largely

¹ According to Simon, *gayi* has priority over *saül*.

buff. The latter form occupies the Central and East Andes and Santa Marta group of Colombia; the former is found in western Venezuela, the West Andes of Colombia, and southward to central Peru. It follows, therefore, that the range of *gayi* is interrupted by that of *lafresnayi*. According to Todd and Carriker¹ specimens from Santander, Colombia, indicate the intergradation of these two forms, but, in any event, the white-tailed form reappears in Venezuela, repeating by parallelism the characters of the more southern race.

Four females and two young males from Rumicruz, Prov. Junin, eastern Peru, have slightly longer wings and shorter bills than Ecuadorian specimens, and thus confirm the validity of *L. g. rectirostris* Berl. & Stolz.

(1271) **Ensifera ensifera** (Boiss.)

Ornismya ensifera BOISS., Rev. Zoöl., 1839, p. 354 (Bogotá).

Docimastes schliephackei HEINE, J. f. O., 1863, p. 215 (Ecuador).

Trochilus ensiferus, JARD., 1849, p. 44 (Pichincha, 11,000 to 12,000 ft.).

Docimastes ensifer, SCL., 1858c, p. 555 (Matos); 1860b, p. 81 (Lloa); S. & F., 1900, p. 9 (Pun; El Troje; near Quito; Papallacta); Simon, 1907, p. 20 ("Gualea"; Perucho; Puembo).

Docimastes ensiferus schliephackei, B. & T., 1884, p. 304 (Cechce); 1885, p. 105 (San Rafael).

Ensifera ensifera schliephackei, OBERH., 1902, p. 327 (Pichincha and Papallacta, 9,000 to 10,500 ft.).

Hacienda Garzon (Rhoads).

Pichincha, 2♂, 1♀; Yanacocha, 1♀; Taraguacocha, 1♀; Papallacta, 4♂, 1♀; Oyacachi, 1♂, 1♀; upper Sumaco, 1♂, 2♀.

RANGE.—Temperate Zone; Mérida region, Venezuela, to central Peru.

There is much geographic as well as individual variation in the length of the bill of this species. It appears to be longest in Mérida, Venezuela, specimens and shortest in Bogotá examples, while Ecuadorian birds are between the two. The latter have received the name *schliephackei* based on this character, but recognition of this form would require also recognition of a Venezuelan form, with the consequent creation of a double set of intergrades, a large proportion of which could not be determined definitely. I feel, therefore, that the case is best handled by presenting the facts and employing only a binomial to cover them.

Mérida, Ven.	6 males, bill, 91–98 (95 mm.)
Bogotá, Col.	3 males, bill, 78–83 (82 mm.)
Ecuador	7 males, bill, 82–95 (88 mm.)
Maraynioc, Peru	2 males, bill, 82–92 (87 mm.)

¹ 'Birds of Santa Marta Region,' p. 253.

(1272) *Pterophanes cyanopterus* (Fraser)

Trochilus cyanopterus FRASER, P. Z. S., 1840, p. 17 (Bogotá).

Ornismya temmincki BOISS. (nec LESSON, 1829), Rev. Zoöl., 1839, p. 354 (Bogotá).

Pterophanes temmincki, B. & T., 1885, p. 103 (San Rafael); S. & F., 1900, p. 7 (Pichincha; Papallacta); OBERH., 1902, p. 328 (Pichincha and Corazon, 11,500 to 13,000 ft.).

El Corazon, 2 ♀; upper Sumaco, 1 ♂.

RANGE.—Temperate Zone; Colombia to Bolivia.

(1274) *Aglæactis cupripennis cupripennis* (Bourc. & Muls.)

Trochilus cupripennis BOURC. & MULS., Ann. Sci. Phys. et Nat. Lyon, VI, 1843, p. 46 (Colombia).

Aglæactis æquatorialis CAB. & HEINE, Mus. Heine, III, 1860, p. 70 (Chimborazo).

Aglæactis cupreipennis, SCL., 1860a, p. 70 (Chillanes); 1860b, p. 81 (Lloa; Ruca Pichincha); B. & T., 1884, p. 304 (Cerro Margarita; Cechce); S. & F., 1900, p. 7 (El Troje; Chaupi; Pichincha; Chinguil; Lloa; Frutillas; Papallacta); SIMON, 1907, p. 20 (Aloag; Ilala; Atacazo).

Aglæactis cupreipennis æquatorialis, HART., 1898, p. 495 (Cayambe).

Aglæactis cupripennis æquatorialis, OBERH., 1902, p. 328 (Mojanda; Pedregal; Pichincha; Corazon; Papallacta).

Above Chambo (10,800 ft.), Hacienda Garzon (Rhoads).

Mojanda, 1 ♂; Pichincha, 7 ♂, 1 ♀; Lloa, 1 ♂; Yanacocha, 2 ♀, 1 juv.; Corazon 1 ♂; Urbina, 1 ♀; Chimborazo, 1 ♀; Oyacachi, 3 ♂, 2 ♀; Papallacta, 1 ♂, 2 ♀.

RANGE.—Temperate Zone: the species, Colombia to northern Peru; the race, Colombia to central Ecuador.

Specimens from northern Ecuador, at least as far south as Chimborazo (type-locality of *æquatorialis*), appear to represent but one form.

(1275) *Aglæactis cupripennis parvula* Gould

Aglæactis parvula GOULD, Introd. Trochil., 1861, p. 106 (Peru).

Bestion, 8 ♀; Salvias, 1 ♀; Taraguacocha, 4 ♂, 2 ♀; Guachanamá, 1 ♂, 2 ♀; Loja, 1 ♂. Peru: El Tambo, 4 ♀.

RANGE.—Temperate Zone; southern Ecuador and northern Peru.

Distinguished by its smaller size, shorter bill, deeper rufous underparts, and, as a rule, more rufous nape. A well-marked form.

Aglæactis caumatonota, of eastern Peru, I consider specifically distinct from *cupripennis*.

(1280) **Boissonneaua jardini** (*Bourc.*)

Trochilus jardinii BOURC., Compt. Rend., XXII, 1851, p. 187 (Nanegal?).

Panoplitus jardinei, HART., 1898, p. 494 (Paramba); S. & F., 1900, p. 5 (Gualea).

Boissonneaua jardini, OBERH., 1902, p. 328 (Nanegal).

Boissonneauauxia jardinei, SIMON, 1907, p. 20 (Mindó; Nanegal; Nono; Guapulo; Cumbaya; Tumbaco).

Gualea, 3 ♂, 2 ♀.

RANGE.—Subtropical Zone; western Colombia and western Ecuador.

(1281) **Boissonneaua matthewsii** (*Bourc.*)

Trochilus matthewsii BOURC., P. Z. S., 1847, p. 43 (Loddiges' manuscript).

Panoplitus matthewsii, SCL., 1859a, p. 145 (Pallatanga); B. & T., 1884, p. 304 (Cayandeled); 1885, p. 102 (Baños).

Boissonneaua matthewsii, OBERH., 1902, p. 328 (Baeza).

Junction Chanchan and Chiguancay; Huigra; Chunchi; Pagma forest (Rhoads).

El Chiral, 3 ♂, 1 ♀, 2 ?; below Oyacachi, 1 ♂; Baeza, 5 ♂, 1 ♀; lower Sumaco, 1 ♂.

RANGE.—Subtropical Zone; eastern and western Ecuador and Peru.

(1283) **Boissonneaua flavescens tinochlora** *Oberh.*

Boissonneaua flavescens tinochlora OBERH., Proc. U. S. N. M., XXIV, 1902, p. 329 (w. side of Corazon, Ec.; Corazon, 11,000 to 13,000 ft.; Pichincha¹; Canzacota).

Panoplitus flavescens, S. & F., 1900, p. 5 (Niebli).

Boissonneauauxia flavescens, SIMON, 1907, p. 20 (Iliniza; Antisana, above 13,000 ft.).

'Quito,' 3; Gualea, 1 ♂, 1 ♀.

RANGE.—Temperate Zone: the species, western Venezuela, Colombia and western Ecuador; the race, western Ecuador.

This form is not recognized by Simon but re-examination of our material leads to the conclusion already expressed in my paper on Colombian birds (p. 300).

(1284) **Vestipedes luciani** (*Bourc.*)

Trochilus luciani BOURC., Ann. Sci. Phys. et Nat. Lyon, X, 1847, p. 624 (Guaca).

Eriocnemis luciani, SCL., 1860b, p. 81 (Lloa); 1860c, p. 94 (Puellaro and above); B. & T., 1884, p. 303 (Cechce); 1885, p. 105 (San Rafael); S. & F., 1900, p. 10 (Chaupi; Pelagallo; Lloa); SIMON, 1907, p. 21 (interandine region; crit.).

Vestipedes luciani, OBERH., 1902, p. 329 (Mojanda; Pedregal; Corazon; Aloag; Lloa; Pichincha; 9,000 to 12,000 ft.).

Above Chambo; Hacienda Garzon (Rhoads).

Yanacocha, 1 ♀; Pichincha, 7 ♂, 5 ♀; El Corazon, 1 ♂.

RANGE.—Temperate Zone of Ecuador, chiefly on the western side of the Andes.

¹ Recorded from Pichincha, though Goodfellow is quoted as saying that he did not see the bird on that mountain.

(1289) *Vestipedes vestitus smaragdinipectus* (Gould)

Eriocnemis smaragdinipectus GOULD, Ann. & Mag. Nat. Hist., Ser. 4, 1868, p. 322 (Quito); B. & T., 1885, p. 105 (San Rafael).

Vestipedes vestitus smaragdinipectus, OBERH., 1902, p. 330 (Papallacta).

East of Loja (8,500 to 11,500 ft.), 2 ♂; San Francisco, east of Ambato (9,000 ft.), 1 ♂; Oyacachi, 4 ♂, 1 ♀.

RANGE.—Temperate Zone: the species, western Venezuela, through Colombia to eastern Ecuador; the race, eastern Ecuador and south-central Colombia.

(1291) *Vestipedes godini* (Bourc.)

Trochilus godini BOURC., Compt. Rend., XXXII, 1851, p. 186 (Guallabamba, Ec.).

Ecuador, 1 ♂.

RANGE.—Temperate Zone (?); northern Ecuador.

A specimen in the Elliot collection (Amer. Mus. Nat. Hist., No. 38435) from the Bourcier collection, is labeled, presumably by Bourcier, "Type *godini* Bourc. tué in 1850; Equateur." There is also a male "type" of this species in the British Museum (Cat. Bds. B. M., XVI, p. 366). The American Museum specimen is a female of *nigrivestris* and does not agree with Bourcier's description of *godini*. If the description of this species in the British Museum is from Bourcier's type it is probable that their specimen, not ours, is the real type of the species.

Eriocnemis sapphiropygia recorded by Simon from Ambato (1907, p. 21) proves to be the young of *luciani* (Simon, Hist. Nat. Trochil., 1921, p. 372).

(1295) *Vestipedes mosquera* (Delatt. & Bourc.)

Trochilus mosquera DELATT. & BOURC., Rev. Zoöl., 1846, p. 306 (Pasto, Col.).

Eriocnemis mosquera, B. & T., 1885, p. 105 (San Rafael).

Eriocnemis mosquera, SIMON, 1907, p. 21 (Lloa).

Vestipedes mosquera mosquera, OBERH., 1902, p. 330 (Pichincha).

Oyacachi, 1 ♂.

RANGE.—Temperate Zone; northern Ecuador and Colombia.

(1300) *Vestipedes aureliæ russata* (Gould)

Eriocnemis russata GOULD, P. Z. S., 1871, p. 505 (Ecuador).

Papallacta (Rhoads ex. Söderstrom).

Below Oyacachi, 5 ♂, 1 ♀; lower Sumaco, 5 ♂, 7 ♀.

RANGE.—Subtropical Zone: the species, Colombia to Bolivia; the race, eastern Ecuador.

The male has the underparts darker than the female, and I believe that comparison of accurately sexed specimens would show no difference between 'Bogotá' and Ecuadorean birds.

(1301) *Vestipedes lugens* (Gould)

Eriopus lugens GOULD, Contrib. Ornith., 1851, p. 140 (Quito).

Vestipedes lugens, OBERH., 1902, p. 330 (Papallacta).

'Ecuador,' 3 ♂.

RANGE.—Temperate Zone; northern Ecuador.

We have only trade skins of this species.

(1302) *Vestipedes nigrivestis* (Bourc.)

Trochilus nigrivestis BOURC., Ann. Sci. Phys. et Nat. Lyon, IV, 1852, p. 144 ("Tumbaro" = Tumbaco).

Eriocnemis nigrivestis, S. & F., 1900, p. 11 (Frutillas); SIMON, 1907, p. 21 (Pichincha).

Vestipedes nigrivestis, OBERH., 1902, p. 331 (Atacazo and Pichincha, 9,000 ft. of summit; females found only at from 9,000 to 10,000 ft.).

'Ecuador,' 1 ♂ (type), 1 ♀ (one of the types of *godini*); above Guala, 1 ♂, 4 ♀.

RANGE.—Temperate Zone; northern Ecuador.

I have referred to the specimen labeled as "type" of *godini* under that species.

(1303) *Vestipedes alinæ* (Bourc.)

Ornismya alinæ BOURC., Ann. Soc. Agric. Lyon, V, 1842, p. 344, pl. 19 (Tunja).

RANGE.—Northern Ecuador to the Bogotá region.

We have only 'Bogotá' specimens of this species.

(1305) *Vestipedes derbyi derbyi* (Delatt. & Bourc.)

Trochilus derbyi DELATT. & BOURC., Rev. Zoöl., 1846, p. 306 ("Volcan du Puracé, près Popayan").

Eriocnemis derbyi, S. & F., 1900, p. 11 (El Troje).

Engyete derbyi, SIMON, 1907, p. 21 (Tulcan; Chota; Hatuntaqui, near Ibarra).

Colombia: Popayan, 1 ♂, 1 ♀ (types). Ecuador: 1.

RANGE.—Temperate Zone: the species, northern Ecuador to the northern end of the Central Andes (and Bogotá region ?), Colombia; the race, northern Ecuador and southern Colombia.

I have before commented on the distribution of this species (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 302).

(1309) *Ocreatus underwoodi melanantherus* (Jard.)

Trochilus (Spathura) melananthera JARD., Contrib. to Ornith., 1851, p. 111, pl. lxxx (Quito).

Spathura melananthera, SCL., 1859a, p. 145 (Pallatanga); 1860c, p. 95 (Nanegal); S. & F., 1900, p. 6 (Niebli); SIMON, 1907, p. 21 (Mindo; Nanegal; Guápulo; Nono; Cumbaya; Tumbaco).

Steganura melananthera, B. & T., 1884, p. 305 (Cayandede; Pinyampunga; Surupata).

Ocreatus melanantherus, OBERH., 1902, p. 331 (Milligalli; Mindo; Gualea).

Junction Chanchan and Chiguancay; Huigra (Rhoads).

Gualea, 5♂, 13♀; above Bucay, 4♀; El Chiral, 2♂, 3♀; Zaruma, 1♀; Punta Santa Ana, 2♂, 2♀; Salvias, 1♀; Las Piñas, 1♂; San Bartolo, 1♂, 1♀; Alamor, 2♂, 2♀.

RANGE.—Subtropical Zone: the species, western Ecuador, Colombia to Venezuela; the race, western Ecuador.

I have before commented on the distribution of this species (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 303).

(1310) *Ocreatus cissiurus* (Gould)

Spathura cissiura GOULD, P. Z. S., 1853, p. 109 (Peru).

Steganura solstitialis, B. & T., 1885, p. 102 (Mapotó).

Ocreatus cissiurus, OBERH., 1902, p. 332 (Baeza).

Sabanilla, 3♂, 4♀; Zamora, 1♂, 1♀; below San José, 2♀; Baeza, 2♂; below Oyacachi, 1♂, 2♀.

RANGE.—Subtropical Zone; eastern Ecuador and northeastern Peru.

Simon refers Ecuadorean specimens to *peruana*, and, so far as our material goes, it supports this view. I have, however, only one specimen of *peruana*, an adult male from Guayabamba, and cannot therefore form an independent opinion in regard to the relationship of birds from the two countries.

(1314) *Urosticte benjamini benjamini* (Bourc.)

Trochilus benjamini BOURC., Compt. Rend., XXXII, 1851, p. 187 (vicinity of Gualea, Ec.).

Urosticte benjamini, SCL., 1860c, p. 95 (Nanegal); SALVIN, Cat. Bds. B. M., XVI, 1892, p. 167 (Baeza; Loja); HART., 1898, p. 495 (Paramba); OBERH., 1902, p. 332 (Gualea; Santo Domingo); SIMON, 1907, p. 21 (Intac; Aloag; Cotopaxi; Papallacta).

'Ecuador,' 9♂, 1♀; Gualea, 2♂, 2♀.

RANGE.—Subtropical Zone: the species, Ecuador and western Colombia; the race, Ecuador and southwestern Colombia.

We have only native-collected specimens from Ecuador, but Richardson secured a female at Ricuarte, in southwestern Colombia (see Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 303). Its occurrence on Cotopaxi and at Papallacta is to be doubted.

(1315) *Urosticte ruficrissa* Lawr.

Urosticte ruficrissa LAW., Ann. Lyc. Nat. Hist. N. Y., 1877, VIII, p. 44 (Ecuador).

Urosticte ruficrissa corpulenta SIMON, Hist. Nat. Trochil., 1921, p. 348 (Rio Pastassa, Ec.).

'Quito,' 1 ♂ (type); Napo, 1 ♂, 1 ♀; below San José, 5 ♂, 2 ♀; below Oyacachi, 5 ♂, 3 ♀.

RANGE.—Subtropical Zone; eastern Ecuador.

Our specimens agree with the type. The form described by Simon is evidently a pure synonym of *ruficrissa*.

(1317) *Phlogophilus hemileucurus* Gould

Phlogophilus hemileucurus GOULD, P. Z. S., 1860, p. 310 (banks of the Rio Napo).

Rio Suno, 3 ♂, 3 ♀; below San José, 3 ♂, 4 ♀.

RANGE.—Tropical Zone; eastern Ecuador.

(1319) *Adelomyia melanogenys melanogenys* (Fraser)

Trochilus melanogenys FRASER, P. Z. S., 1840, p. 18 (Bogotá).

Adelomyia melanogenys melanogenys, OBERH., 1902, p. 332 (Papallacta; Baeza).

Adelomyia melanogenys maculata, B. & T., 1885, p. 104 (Mapoto; Machay).

Guayaba, 2 ♀; Sabanilla, 2 ♀; lower Sumaco, 9 ♂, 6 ♀; Baeza, 4 ♂, 1 ♀; below Oyacachi, 7 ♂, 6 ♀.

RANGE.—Subtropical Zone: the species, Venezuela to Bolivia; the race, eastern Colombia and eastern Ecuador.

(1320) *Adelomyia melanogenys maculata* Gould

Adelomyia maculata GOULD, Mon. Trochil., III, 1861, pl. excix (Quito).

Adelomyia melanogenys, SCL., 1859a, p. 145 (Pallatanga); 1860a, p. 70 (Chillanes); SCL., 1860c, p. 94 (Puellarro); SIMON, 1907, p. 21 (Lloa; Asuncoto; San Holqui).

Adelomyia melanogenys maculata, B. & T., 1884, p. 305 (Cayandeled; Chaguar-pata); OBERH., 1902, p. 332 (Milligalli; Canzacota; w. Pichincha); S. & F., 1900, p. 8 (Niebli).

Gualea, 1 ♀; Pallatanga, 1 ♀; El Chiral, 1 ♂, 1 ♀; Zaruma, 1 ♀; Salvias, 1 ♀; San Bartolo, 3 ♂, 2 ♀; Celica, 2 ♂, 1 ♀.

RANGE.—Subtropical Zone; western Ecuador.

Specimens from western Ecuador, to which the name *maculata* is usually applied, may be distinguished from those of eastern Ecuador chiefly by the greater amount of ochraceous-buff at the base of the tail.

(1327) ***Helianthus strophianus* (Gould)**

Trochilus (— ?) *strophianus* GOULD, P. Z. S., 1846, p. 45 (Ecuador).

Helianthus strophianus, SCL., 1860c, p. 95 (Nanegal); S. & F., 1900, p. 9 (Intac); OBERH., 1902, p. 333 (San Gabriel; Guala; Canzacota; lower w. Pichincha); SIMON, 1907, p. 21 (Santo Domingo; Mindo; Guala; Pifo; Nanegal).

Guala, 7 ♂, 10 ♀.

RANGE.—Subtropical Zone; western Ecuador.

The Bogotá representative is apparently *H. clarissæ*.

(1327a) ***Helianthus violicollis* Salv.**

Helianthus violicollis SALV., Cat. Bds. B. M., XVI, 1892, p. 162, pl. v, fig. 2 (Sarayacu).

RANGE.—Known only from the type-locality.

I have not seen this species. It is based on one adult and one young male, and is said to resemble *strophianus* but to be more rufescent above and more bronzy below, and to have the throat "violet-blue without any red or rosy tint." It may be the east Ecuadorean form of *strophianus*.

(1329) ***Helianthus laticlavus* Salv.**

Helianthus laticlavus SALV., Ann. & Mag. Nat. Hist. (6), VII, 1891, p. 376 (Intac); Cat. Bds. B. M., XVI, 1892, p. 160 (Jima; Intac; 'Napo'); SIMON, Hist. Nat. Trochil., 1921, p. 367 (Cuenca).

RANGE.—Ecuador; probably Temperate Zone.

According to Simon, the range of this species is southern Ecuador, in which case the record from Intac as well as that from 'Napo' is erroneous. I have not seen this species.

(1330) ***Helianthus amethysticollis* (d'Orb. & Lafr.)**

Orthorhynchus amethysticollis D'ORB. & LAFR., Mag. Zool., VIII, 1838, p. 31 (Yuracares, Bol.).

Helianthus amethysticollis, OBERH., 1902, p. 333 (below Baeza).

RANGE.—Subtropical Zone; Bolivia to eastern Ecuador.

An adult male recorded by Oberholser is the only instance of the occurrence of this species in Ecuador known to me.

(1332) ***Helianthus exortis* (Fraser)**

Trochilus exortis FRASER, P. Z. S., 1840, p. 14 (Guaduas, Col.).

Heliotrypha parzudakii, B. & T., 1885, p. 105 (Baños).

Helianthus exortis exortis, OBERH., 1902, p. 333 (Papallacta).

Helianthus exortis soderstromi OBERH., 1902, p. 334 (lower w. Corazon); CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 305 (crit.).

Below Papallacta, 2♂; Baeza, 1♂; upper Sumaco, 8♂, 3♀.

RANGE.—Subtropical Zone; Colombia, eastern (and western ?) Ecuador.

See my remarks under *H. viola*.

(1333) ***Helianthus micraster micraster* Gould**

Helianthus micraster GOULD, Ann. & Mag. Nat. Hist. (4), IX, 1872, p. 195 (San Lucas, Ec.).

Loja, 1♂.

RANGE.—Subtropical Zone: the species, southern Ecuador and northern Peru; the race, southern Ecuador.

Two specimens from Cutervo, Peru, exhibit the characters attributed by Simon to *H. m. cutervensis*.

(1334) ***Helianthus viola* Gould**

Helianthus viola GOULD, P. Z. S., 1853, p. 61 ("Banks of Marañon"); OBERH., 1902, p. 334 (Papallacta; w. Pichincha).

Heliotrypha viola, SCL., 1859a, p. 145 (Pallatanga); B. & T., 1884, p. 303 (Ceche; Alpachaca); 1885, p. 105 (La Union; Yoacsi); S. & F., 1900, p. 9 (Cuenca).

Chunchi; Huigra; Pagma forest (Rhoads).

El Chiral, 2♂, 3♀; Taraguacocha, 6♂, 1♀; Salvias, 1♂; El Paso, 4♂, 4♀; Guachanama, 2♂; San Bartolo, 5♂, 1♀. Peru: El Tambo, 8♂.

RANGE.—Subtropical to Temperate Zone; western Ecuador and Marañon region of Peru.

The record of the occurrence of this species at Papallacta in eastern Ecuador requires confirmation. Were it not for the record of *exortis* from Corazon I should be inclined to regard this species as the western Ecuadorean representative of that species. Possibly the Corazon specimen, as well as those of *viola* recorded from Papallacta, has been wrongly labeled.

(1339) ***Metallura primolina* Bourc.**

Metallura primolina BOURC., Rev. et Mag. de Zoöl., 1853, p. 295 (Ecuador); B. & T., 1885, p. 103 (San Rafael); HART., 1898, p. 495 (Mt. Cayambe); S. & F., 1900, p. 7 (Papallacta); SIMON, 1907, p. 21 (Baeza).

Laticauda primolina, OBERH., 1902, p. 334 (Papallacta; road to Baeza; Curiurcu, above Baeza).

Papallacta, 2 ♂, 2 ♀; Oyacachi, 3 ♂, 3 ♀.

RANGE.—Temperate Zone; northeastern Ecuador.

Represented in southern Colombia by *M. williamsi*.

(1340) ***Metallura atrigularis* Salv.**

Metallura atrigularis SALV., Bull. B. O. C., 1893, p. 49 (Sigsig, 12,000 ft., Ec.); E. & C. HART., Nov. Zoöl., I, 1894, p. 49, pl. iv, figs. 1 and 2.

Taraguacocha, 3 ♂.

RANGE.—Temperate Zone; southern Ecuador.

(1343) ***Metallura baroni* Salv.**

Metallura baroni SALV., Bull. B. O. C., 1893, p. 49 (Cuenca).

Cuenca, 2 ♂ (Baron).

RANGE.—Temperate Zone; southern Ecuador.

(1348) ***Metallura tyrianthina tyrianthina* (Lodd.)**

Trochilus tyrianthina LODD., P. Z. S., 1832, p. 6 (Popayán).

Metallura tyrianthina quitensis, B. & T., 1885, p. 104 (San Rafael; Baños).

Metallura tyrianthina, SCL., 1858c, p. 555 (Matos; Penipi); S. & F., 1900, p. 7 (Papallacta spp. only).

Laticauda tyrianthina tyrianthina, OBERH., 1902, p. 334 (Papallacta).

Taraguacocha, 4 ♂, 3 ♀; Bestion, 1 ♂; El Paso, 1 ♀; Loja, 1 ♂, 1 ♀; below Papallacta, 2 ♂; above Baeza, 2 ♂, 3 ♀; Oyacachi, 3 ♂, 2 ♀; upper Sumaco, 7 ♂, 3 ♀. Peru: El Tambo (above Huancabamba), 5 ♂, 2 ♀.

RANGE.—Humid-Temperate Zone: the species, northern Peru to Venezuela; the race, southern and eastern Ecuador, Colombia, and western Venezuela.

Specimens from southwestern and eastern Ecuador and northern Peru agree with true *tyrianthina* of Colombia, leaving the Quito region as the home of *tyrianthina quitensis*. In birds from the latter region the underparts average rustier, the general size larger, the bill longer, but these characters are not constant and the form is of questionable standing.

(1349) ***Metallura tyrianthina quitensis* Gould**

Metallura quitensis GOULD, Introd. Trochil., 1861, p. 112 (Ecuador); LAW., 1869, p. 237 ("Puna Is."! error.)

Metallura tyrianthina, SCL., 1859a, p. 145 (Pallatanga); 1860c, p. 95 (above Puellaro); B. & T., 1884, p. 305 (Chaguarpata; Cechce); S. & F., 1900, p. 7 (Pun; El Troje; Pelagallo; Chaupi; Chinguil; Lloa; Frutillas).

Metallura tyrianthina quitensis, SIMON, 1907, p. 21 (interandine region).

Laticauda tyrianthina quitensis, OBERH., 1902, p. 335 (w. Andes between 9,000 and 12,000 ft., Pichincha; Atacazo; Jambillo [= Tambillo]; Corazon; "Jablon").

Forest above Chambo; Hacienda Garzon (Rhoads).

Lloa, 1 ♂; Pichincha, 10 ♂, 6 ♀; Yanacocha, 1 ♂, 2 ♀.

RANGE.—Humid Temperate Zone; northwestern Ecuador.

(1358) ***Chalcostigma herrani* (Delatt. & Bourc.)**

Trochilus herrani DELATT. & BOURC., Rev. Zoöl., 1846, p. 309 (Pasto, Col.).

Rhamphomicron herrani, SALVIN, Cat. Bds. B. M., XVI, 1892, p. 345 (Intac; Quito; Pichincha).

Papallacta, 1 ♂; Cerro Huamani, 1 ♀; Oyacachi, 3 ♂.

RANGE.—Temperate Zone; southern Colombia and northern Ecuador.

(1361) ***Chalcostigma stanleyi stanleyi* (Bourc.)**

Trochilus stanleyi BOURC., Compt. Rend., Ac. Sci., XXXII, 1851, p. 187 (Paramo of Pichincha).

Rhamphomicron stanleyi, SCL., 1860b, p. 81 (Panza).

Chalcostigma stanleyi, OBERH., 1902, p. 335 (Papallacta; Pichincha).

Ramphomicron stanleyi, RHOADS, 1912, p. 148 (Pichincha, 500 ft. below crater's top).

"Ecuador," 2 ♂; Pichincha, 3 ♂; El Corazon, 1 ♂; Cerro Huamani, 1 ♂.

RANGE.—Paramo Zone: the species, Ecuador to Bolivia; the race, Ecuador.

An adult male from Chipa, Dept. Junin, Peru (*C. s. versigularis* Zimmer), except for a tinge of violet on the most posterior feather, has the throat as in our two Ecuadorean birds, but is more sooty, less brownish below.

(1365) ***Chalcostigma ruficeps aureofastigatum* Hart.**

Chalcostigma ruficeps aureofastigatum HART., Nov. Zoöl., VI, 1899, p. 74 (Loja).

RANGE.—Temperate Zone: the species, southern Ecuador to Bolivia; the race, southern Ecuador.

I have seen no specimens of this species from Ecuador. Of three adult males from Rumicruz, east central Peru, two have the gular patch

entirely green and agree with two Bolivian males; and one has the posterior fourth of this patch golden, agreeing, therefore, with the description of the Ecuadorean bird. Whether this variation is individual or racial, I am unable to say. Hartert gives no information concerning the material on which he based his proposed race.

(1366) **Ramphomicron microrhynchum microrhynchum** (Boiss.)

Ornismya microrhyncha BOISS., Rev. Zoöl., 1839, p. 354 (Bogotá).

Ramphomicron microrhynchum, B. & T., 1884, p. 305 (Cechce); OBERH., 1902, p. 335 (Pichincha; Papallacta, 10,000 to 12,000 ft.).

Rhamphomicron microrhynchum, S. & F., 1900, p. 7 (Pun); SIMON, 1907, p. 22 (Corazon; Tanaragua, about 13,000 ft.).

Hacienda Garzon (Rhoads).

Pichincha, 7 ♂, 2 ♀; Taraguacocha, 1 ♂; Papallacta, 3 ♂; Oyacachi, 1 ♂.

RANGE.—Temperate Zone: the species, Ecuador to Venezuela; the race, eastern and western Ecuador and Colombia.

An adult male from the Mérida region exhibits the characters ascribed to *andicola* Simon.

(1368) **Opisthoprora euryptera** (Lodd.)

Trochilus eurypterus LODD., P. Z. S., 1832, p. 7 (Popayan).

Opisthoprora euryptera, OBERH., 1902, p. 336 (Papallacta); SIMON, 1907, p. 22 (Oyacachi).

Papallacta, 2 ♂; above Baeza, 1 ♀; upper Sumaco, 2 ♂, 1 ♂ juv.

RANGE.—Temperate Zone; northeastern Ecuador and southern Colombia.

We have 'Bogotá' skins but I know of no definite record north of Popayan.

(1375) **Cyanolesbia mocoa mocoa** (Delatt. & Bourc.)

Trochilus mocoa DELATT. & BOURC., Rev. Zoöl., 1846, p. 311 (Mocoa, Col.)

Cyananthus mocoa, B. & T., 1885, p. 103 (Baños; Mapoto).

Cyanolesbia kingii mocoa, OBERH., 1902, p. 336 (Baeza); SIMON, 1907, p. 22 (Chone).

Sabanilla, 2 ♂, 2 ♀; below San José, 2 ♀; upper Sumaco, 3 ♂, 1 ♀; 'Napo,' 1 ♂; Baeza, 3 ♂, 3 ♀; below Oyacachi, 2 ♂; below Papallacta, 2 ♂.

RANGE.—Subtropical Zone: the species, southeastern Colombia to Bolivia; the race, southeastern Colombia to northeastern Peru.

I still find no proof of the intergradation of this species with *kingi* (see Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, pp. 307-309).

(1379) *Cyanolesbia caelestis caelestis* (Gould)

Cyananthus caelestis GOULD, Introd. Trochil., 1861, p. 102 (Ecuador).

Cyananthus cyanurus, SCL., 1860a, p. 70 (Pallatanga).

Lesbia cyanura, SCL., 1860c, p. 95 (Nanegal).

Cyanolesbia caelestis HART., 1897, p. 495 (Milligalli); S. & F., 1900, p. 7 (Gualabamba); OBERH., 1902, p. 337 (Gualea; Milligalli); SIMON, 1907, p. 22 (Mindo; Gualea; Nanegal; Santo Domingo; Intac; Pucara; "Rio Napo").

Cyananthus cyanurus caelestis, B. & T., 1883, p. 567 (Chimbo); 1884, p. 305 (Cayandeled).

Junction Chanchan and Chiguancay (Rhoads).

Gualea, 12♂, 10♀; above Naranjo, 1♀.

RANGE.—Subtropical Zone: the species, western Ecuador and western Colombia; the race, northwestern Ecuador and southwestern Colombia.

Specimens from Nóvita, provisionally referred by me to *caelestis* (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 309), have been described by Simon (Hist. Nat. Trochil., p. 386) as *Lesbia kingi pseudocaelestis*, but in my opinion, if recognized, should stand as a race of *caelestis* (see Amer. Mus. Novit., No. 187, 1925, p. 3).

(1379a) *Cyanolesbia caelestis æthereus* Chapm. (Plate XXVI)

Cyanolesbia caelestis æthereus CHAPM., Am. Mus. Novit., No. 187, 1925, p. 3 (Alamor).

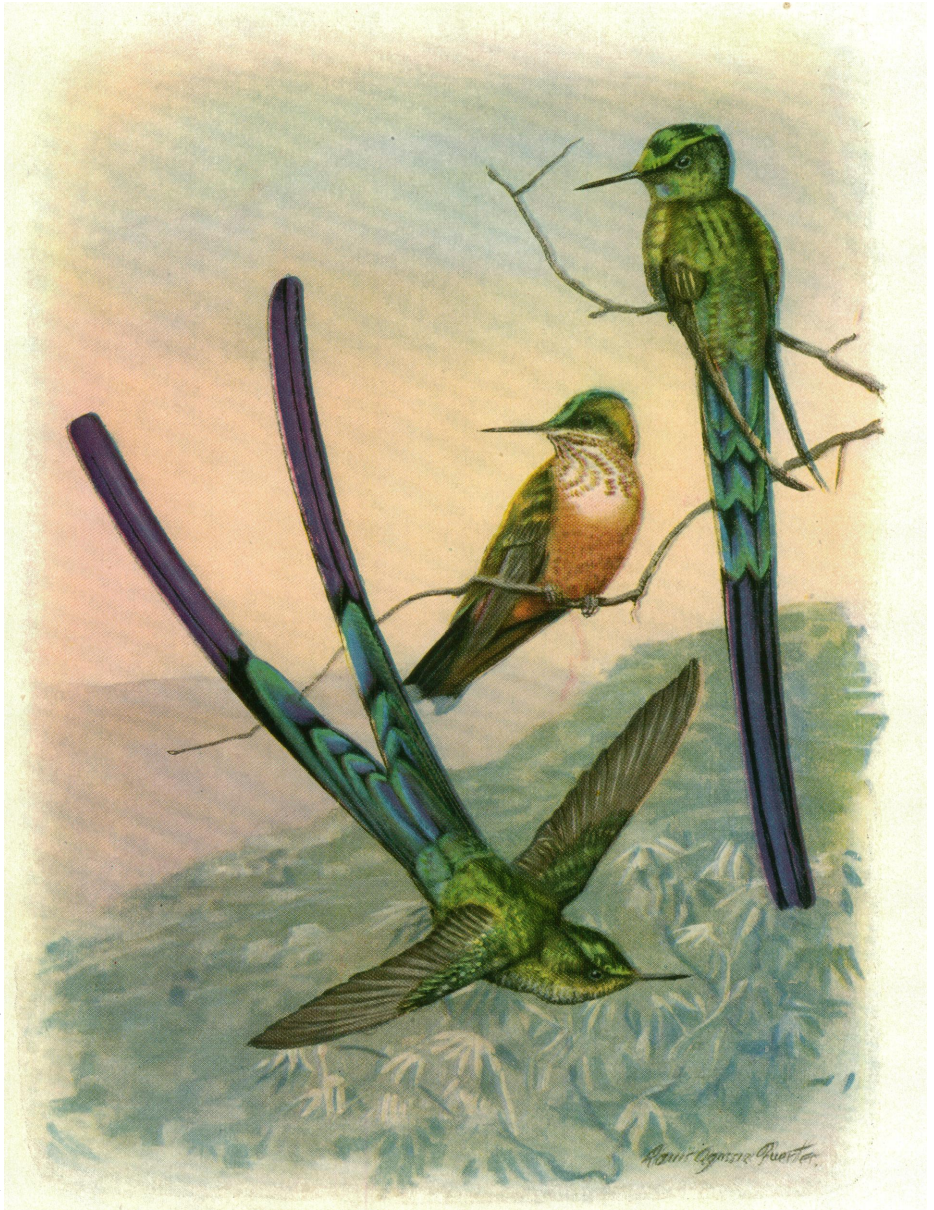
El Chiral, 3♂, 5♀; above Zaruma, 4♂, 2♀; Salvias, 1♂, 1♀; Punta Santa Ana, 4♂, 2♀; San Bartolo, 1♂, 1♀; Alamor, 12♂, 9♀.

RANGE.—Subtropical Zone of southwestern Ecuador from near Zaruma southward.

Subspecific Characters.—Most nearly related to *Cyanolesbia caelestis caelestis* (Gould) of the Subtropical Zone of northwestern Ecuador and southwestern Colombia; but male with no purple gular patch, the throat green, somewhat brighter than the breast; the outer tail-feathers averaging longer, bluer above and darker below; the inner tail-feathers more widely tipped and margined with green, the inner pair wholly green, instead of bluish purple narrowly margined with green. Male with a superficial resemblance to *Cyanolesbia caudata* Berl. of the Mérida, Venezuela, region but more bronzy both above and below, the lower tail-coverts more rusty, the outer tail-feathers much broader, the inner ones rounded, not pointed terminally. In general coloration the male differs from *C. emmæ* Berl. of western Colombia, much as it does from *C. caudata*, and, in addition, has the tail blue instead of green.

Female closely resembling the female of *caelestis caelestis* but with the throat, as a rule, less heavily spotted, the breast buffier; differs from the females of both *caudata* and *emmæ* in having a large buffy white area on the chest (which in those species is ochraceous like the abdomen) and no green on the sides and flanks.

A distinct form of which we have connectants with true *caelestis* from El Chiral, Zaruma, and Punta Santa Ana.



CYANOLESBIA CÆLESTIS ÆTHEREUS CHAPM.

(1387) *Psalidoprymna victoriæ æquatorialis* (Bouc.)

Lesbia æquatorialis BOUC., Hummingbird, III, 1893, p. 6 ("Rio Napo").

Lesbia amaryllis, SCL., 1858b, p. 460 (Cuenca); 1858c, p. 555 (Pinipi; Titiacun; Riobamba); 1860c, p. 94 (Calacali); 1860b, p. 81 (Quito); LAW., 1869, p. 237 ("Puna Is."); B. & T., 1884, p. 305 (Cechce; Alausi); 1885, p. 103 (Penipe; between Riobamba and Chimborazo).

Lesbia victoriæ, HART., 1898, p. 495 (Cayambe).

Psalidoprymna victoriæ, S. & F., 1900, p. 6 (Quito; Tulcan; El Troje; Chaupi; Cuenca; Lloa; Valle del Chillo; Quito); SIMON, 1907, p. 22 (interandine region).

Psalidoprymna victoriæ æquatorialis, OBERH., 1902, p. 337 (Quito; Chillo Valley; Aloag; Mojanda; Jambillo [= Tambillo]; near Julcan [= Tulcan]; Padregal [= Pedregal]; road to Papallacta, 8,000-10,000 ft.).

Lake Colta; Riobamba; Cajabamba; above Chambo; Cumbaya; Hacienda Garzon (Rhoads).

Pomasqui, 1♂; Quito, 4♂, 5♀; Tumbaco, 3♂, 3♀; Cerro Huamani, 1♂; Chimborazo, 3♂; Bestion, 1♂; El Paso, 1♂.

RANGE.—Arid Temperate Zone: the species, Ecuador, southern and eastern Colombia; the race, Ecuador.

Ecuadorean specimens are greener below and have somewhat longer tails and bills than those from the Bogotá region

(1394) *Psalidoprymna gouldi gracilis* (Gould)

Trochilus (*Lesbia*) *gracilis*, GOULD, P. Z. S., 1846, p. 86 ("Peru").

Lesbia gracilis, SCL., 1858b, p. 460 (Cuenca); 1860c, p. 94 (above Puellaro; Calacali); 1860a, p. 70 (Chillanes).

Psalidoprymna gracilis, SIMON, 1907, p. 22 (Guapulo; Pifo; Tumbaco).

Lesbia gouldi gracilis, B. & T., 1884, p. 305 (Cechce).

Psalidoprymna gouldi gracilis, OBERH., 1902, p. 337 (Pichincha; w. Corazon; Papallacta).

Chunchi; Hacienda Garzon (Rhoads).

Pichincha, 4♂, 1♀; Taraguacocha, 2♂, 1♀; El Paso, 4♂, 1♀; Loja, 3♂, 4♀; Oyacachi, 1♂, 1♀.

RANGE.—Temperate Zone: the species, western Venezuela to northern Peru; the race, Ecuador.

I have not seen specimens of the Peruvian forms described from Peru by Simon (Hist. Nat. Trochil., p. 194) and cannot say whether specimens from southern Ecuador approach them. Nor have I seen topotypes of true *gouldi*, but from Bogotá birds, Ecuadorean examples differ chiefly in having the outer rectrices above black, instead of with greenish reflections.

(1396) *Zodalia orton*i (Lawr.)

*Lesbia orton*i LAW., Ann. Lyc. Nat. Hist. N. Y., 1870, IX, p. 269 (Quito Valley).

*Zodalia orton*i, SALV., Cat. Bds. B. M., XVI, 1892, p. 142 (Intac).

"Quito Valley," 1♂ ad. (type; A. M. N. H., No. 156651, deposited by Vassar College).

RANGE.—Temperate Zone; northern Ecuador (north to Popayan, Col. ?).

This species is evidently very nearly related to *Ramphomicron microrhynchum*, the type of *orton*i closely resembling in body coloration the male of that species, that is, the upperparts are essentially the same shade and character of purple, the throat and remainder of the underparts of green. If, therefore, the mature dress of this species is preceded by a green-backed plumage, as it is in *microrhynchum*, there is excellent ground for Simon's belief that *orton*i is merely the adult of *Z. glyceria* Gould, the type of which is an immature bird with a green back, but with the throat and tail as in the type of *orton*i.

(1397) *Zodalia thaumasta* Oberh.

Zodalia thaumasta OBERH., Proc. U. S. N. M., XXIV, 1902, p. 338 (Illalo, Chillo Valley).

RANGE.—Known from the type and one female.

Simon considers this species to be the same as *Chalcostigma (Metalura) purpureicauda* Hart., described from a Bogotá skin (Bull. B. O. C., VII, 1898, p. 28). The two descriptions agree closely so far as colors are concerned, but *thaumasta* appears to be considerably smaller, having the wing 62 mm. as compared with 71 mm. in Hartert's type. The former, however, is apparently more mature, having the tail 77 mm., while in *purpureicauda* it is but 54 mm. Comparison of the types is required to settle their relationship.

(1400) *Schistes geoffroyi geoffroyi* (Bourc. & Muls.)

Trochilus geoffroyi BOURC. & MULS., Ann. Sci. Phys. et Nat. Lyon, VI, 1844, p. 37, pl. iii ("La Vallée de Canca [sic] près de Carthagène, dans la Colombie"—error; I suggest, El Roble above Fusugasugá, Col.).

Schistes geoffroyi, SCL., 1860a, p. 70 (Pallatanga).

Below Oyacachi, 5♂. Peru: Chaupi, 2♂.

RANGE.—Subtropical Zone: the species, Colombia to Bolivia; the race, eastern Colombia, eastern Ecuador, and eastern Peru.

Five specimens from Bolivia are referable to *geoffroyi bolivianus* Simon (Hist. Nat. Trochil., p. 213, described as a race of *albigularis*). This form has the uniformly colored crown and coppery upperparts of *geoffroyi*, but the lateral throat-patches are without white borders and there is less white on the abdomen.

(1401) **Schistes albogularis** Gould

Schistes albogularis GOULD, Contrib. to Ornith., 1851, p. 140 (Pichincha, Ec.); SALVIN., Cat. Bds. B. M., XVI, 1892, p. 35 (Pallatanga).

Schistes personatus, GOULD, P. Z. S., 1860, p. 311 (Ecuador).

Gualea, 1 ♀.

RANGE.—Subtropical Zone; western Ecuador and western Colombia.

Simon describes a race of *S. albogularis*, from Bolivia, as *S. a. bolivianus*; it is apparently, however, a race of *geoffroyi*.

(1404) **Heliothryx auritus auritus** (Gmel.)

Trochilus auritus GMEL., Syst. Nat., I, 1788, p. 493 ("Cayenna").

Heliothrix auritus, OBERH., 1902, p. 339 (Archidona).

Zamora, 1 ♂; Rio Suno, 1 ♂, 2 ♀; below San José, 3 ♂, 2 ♀.

RANGE.—Tropical Zone: the species, Guiana to Peru and southeastern Brazil; the race, Guiana to Peru.

I have only a single Guianan specimen; Ecuadorean birds appear to agree with it.

(1405) **Heliothryx barroti** (Bourc. & Muls.)

[*Ornismya*] *barroti* BOURC. & MULS., Ann. Sci. Phys. et Nat. Lyon, VI, 1844, p. 48 ("Carthagène, dans la Colombie").

Heliothrix purpureiceps, SCL., 1860e, p. 296 (Esmeraldas).

Heliothrix barroti, B. & T., 1883, p. 567 (Chimbo); S. & F., 1900, p. 8 (Rio Peripa); OBERH., 1902, p. 339 (Santo Domingo); SIMON, 1907, p. 22 (Balzar).

Heliothrix auritus, HART., 1898, p. 495 (Chimbo; Paramba).

Bucay (Rhoads).

Esmeraldas, 2 ♂, 4 ♀; Rio de Oro, 2 ♂; La Puente, 1 ♀; Rio Pullango, 1 ♀.

RANGE.—Tropical Zone; western Ecuador to Guatemala.

The type, as I have before remarked (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 310), doubtless came from the humid region south of Carthagena. Ecuadorean and Colombian species agree.

(1414) **Anthoscenus albicrissa** (Gould)

Helimaster albicrissa GOULD, P. Z. S., 1871, p. 504 (Citado, Ec.); TACZ., 1877, p. 745 (Lechugal); B. & T., 1883, p. 567 (Guayaquil; Chimbo); 1885, p. 105 (Yaguachi).

Floricola albicrissa, S. & F., 1900, p. 10 (Valle de Zamora; Balzar); OBERH., 1902, p. 340 (Nanegal).

Esmeraldas, 2♂; Chone, 4; Daule, 2♂; Chongoncito, 1♂; Guayaquil, 1♂; Rio Jubones, 2♂; Portovelo, 1; Lunamá, 3♂, 1♀; Casanga, 1♂, 1♀; Rio Pindo, 2♂; Pullango, 1♂; Alamor, 1♀.

RANGE.—Tropical Zone: the species, Amazonia to Mexico; the race, western (and eastern?) Ecuador and northwestern Peru.

The largely white lower tail-coverts is a well-marked and constant character in western Ecuadorean and also northern Peruvian (Paletillas; Chinchipe Valley) specimens. The occurrence of this race in the Chinchipe Valley makes it probable that Zamora birds are also *albicrissa*.

(1415) **Myrtis fanny** (Less.)

Ornismya fanny LESS., Ann. Sci. Nat., 2d ser., IX, 1838, p. 170 (Peru).

Calothorax fanniae, SCL., 1858b, p. 459 (Cuenca).

Myrtis fannyi, B. & T., 1884, p. 306 (Bugnac).

Myrtis fannyæ, S. & F., 1900, p. 6 (Ibarra); SIMON, 1907, p. 22 (Intac; Ibarra; Otavalo; Yaruqui; Guapulo; Tumbaco; Cumbaya).

Myrtis fanny, OBERH., 1902, p. 340 (Chillo and Chota Valleys).

Tumbaco, 1♂, 2♀; Lunamá, 1♂; Loja, 1♂; Sabanilla, 1♂; Zamora, 2♂, 1♀.

RANGE.—Southwestern Peru to Ecuador.

This little Hummingbird has a very remarkable distribution, being found from sea-level to the Temperate Zone and in tropical eastern as well as tropical western Ecuador. In addition to the specimens listed, we have numerous examples from western Peru, from the Chilean border to Huancabamba.

(1417) **Myrmia micrura** (Gould)

Calothorax micrurus GOULD, P. Z. S., 1853, p. 109 (Peru).

Myrmia micrura, B. & T., 1883, p. 568 (Guayaquil); S. & F., 1900, p. 5 (Savana de Guayaquil; Puntilla de Santa Elena); OBERH., 1902, p. 340 (Santo Domingo).

Acestrura micrura, TACZ., 1877, p. 327 (Tumbez).

La Plata Is., 1♂, 2♀; Santa Elena, 2♂; Daule, 1; Guayaquil, 2♂ ?; Duran, 1♂; Santa Rosa, 1♂.

RANGE.—Equatorial Arid Fauna; western Ecuador and western Peru.

(1418) **Calliphlox amethystina** (Gmel.)

Trochilus amethystinus GMEL., Syst. Nat. I, 1788, p. 496 ("Cayenna").

Calliphlox amethystina, SALV., Cat. Bds. B. M., XVI, 1892, p. 386 (Jima; Sarayacu—Buckley).

Zamora, 1 ♂.

RANGE.—Tropical Zone; Venezuela to northern Argentina; Guianas to eastern Ecuador and Peru.

(1419) **Calliphlox mitchelli** (Bourc.)

Trochilus mitchelli BOURC., P. Z. S., 1847, p. 47 ("Zimapan").

Calliphlox mitchelli, HART., 1898, p. 494 (Paramba); S. & F., 1900, p. 6 (La Concepcion); OBERH., 1902, p. 341 (Milligalli; Gualea).

Gualea, 1 ♂.

RANGE.—Western Colombia and western Ecuador.

(1420) **Chætocercus mulsanti** (Bourc.)

Ornismya mulsanti BOURC., Ann. Sci. Phys. et Nat. Lyon, V, 1842, p. 34, pl. 20 (Colombia).

Calothorax mulsanti, SCL., 1859a, p. 146 (Pallatanga); 1860c, p. 94 (Puellaro).

Acestrura mulsanti, B. & T., 1884, p. 306 (Alausi); HART., 1898, p. 494 (Ibarra); S. & F., 1900, p. 5 (Pun); SIMON, 1907, p. 22 (Tumbaco; Guapulo; Puembo; Cumbaya; "Rio Napo").

Chætocercus mulsanti, OBERH., 1902, p. 341 (Corazon; Pichincha; Jombaca [= Tumbaco], Chillo Valley; Papallacta).

Junction Chanchan and Chiguancay; Huigra; Chunchi; Riobamba (Rhoads).

Cumbaya, 1 ♂, 1 ♀; Tumbaco, 2 ♂; below Oyacachi, 1 ♂; Baeza, 1 ♂, 1 ♀; Zamora, 3 ♂, 2 ♀.

RANGE.—Subtropical to Temperate Zone, Bolivia to Colombia.

(1421) **Chætocercus heliodori** (Bourc.)

Ornismya heliodori BOURC., Rev. Zoöl., 1840, p. 275 (Bogotá).

Acestrura heliodori, SALV., Cat. Bds. B. M., XVI, 1892, p. 408 (San José; Citado; Quito; Pallatanga).

Baeza, 1 ♂; below Oyacachi, 1 ♂, 4 ♀.

RANGE.—Subtropical Zone: Venezuela to Ecuador.

(1426) **Chætocercus bombus** Gould

Chætocercus bombus GOULD, P. Z. S., 1870, pp. 803, 804 (Citado, Ec.); B. & T., 1883, p. 568 (Chimbo); 1884, p. 306 (Cayandeled); 1885, p. 102 (Yaguachi); HART., 1898, p. 494 ("Quito"); S. & F., p. 6 (Playas; Vines).

Polyxemus bombus, OBERH., 1902, p. 341 (Guayaquil; Santo Domingo); SIMON, 1907, p. 23 (Vines).

Huigra; Chunchi; Pagma Forest (Rhoads).

Esmeraldas, 1 ♂, 2 ♀; Chone, 1 ♀; Duran, 2 ♂; Chimbo, 1 ♀; Guainche, 1 ♂, 2 ♀; Alamor, 4 ♀; below San José, 2 ♀; Zamora, 1 ♂, 2 ♀.

RANGE.—Tropical Zone of eastern and western Ecuador southward into Peru.

(1427) *Chætocercus berlepschi* Simon

Chætocercus berlepschi SIMON, Mem. Soc. Zoöl. France, II, 1889, p. 230 (Ecuador).

Esmeraldas, 3 ♂, 3 ♀; Chone, 2 ♂.

RANGE.—Tropical Zone; western Ecuador.

These specimens agree with Simon's description of this species, of which I have seen no authentic examples. The type was believed to have come from the Napo region, but the specimens above recorded are from western Ecuador. It is, of course, not improbable that, like *C. bombus*, the species may be found in both eastern and western Ecuador.

The female differs widely from the female of *bombus* in being white below with only a slight buffy tinge on the throat.

(1428) *Chætocercus harterti* (Simon)

Polyxemus harterti SIMON, Ornith., XI, 1901, p. 202 (Ibagüé, Colombia occidentalis).

Acestrura harterti SIMON, Hist. Nat. Trochil., 1921, pp. 239, 404 (San José, Ec.).

RANGE.—Recorded from Colombia and Ecuador.

Recorded from "San José," Ecuador, by Simon; authority not given. The species is unknown to me.

(1431) *Klais guimeti* (Bourc. & Muls.)

T[rochilus] guimeti BOURC. & MULS., Ann. Sci. Phys. et Nat. Lyon, VI, 1844, p. 38, pl. ii (Colombia).

Klais guimeti, S. & F., 1900, p. 8 (Gualaquiza).

Sabanilla, 1 ♂; Zamora, 3 ♂, 3 ♀; below San José, 7 ♂, 5 ♀.

RANGE.—Subtropical Zone; from Nicaragua to Venezuela, south through eastern Ecuador to southeastern Peru.

(1437) *Lophornis stictolophus* SALV. & ELLIOT

Lophornis stictolophus SALV. & ELLIOT, Ibis, 1873, p. 280 (Colombia).

Lophornis regina, SCL., 1858b, p. 460 (Zamora).

Zamora, 3 ♂, 2 ♀.

RANGE.—Tropical Zone; eastern Colombia and eastern Ecuador.

(1440) *Lophornis verreauxi* Bourc.

Lophornis verreauxi BOURC., Rev. Zoöl., 1853, p. 193 ("Perou"); SALV., Cat. Bds. B. M., XVI, 1892, p. 427 (Ecuador).

Napo, 1 ♂.

RANGE.—Tropical Zone; upper Amazonia.

We have only a trade skin.

(1443) *Popelairia popelairii* (Du Bus)

Trochilus popelairii DU BUS, Esq. Orn., 1846, pl. vi ("Perou").

Popelairia popelairii, OBERH., 1902, p. 342 (Archidona).

Sabanilla, 1 ♀; Zamora, 2 ♂, 6 ♀.

RANGE.—Subtropical Zone; eastern Colombia, eastern Ecuador to Peru.

(1444) *Popelairia langsdorffi* (Temm.)

Trochilus langsdorffi TEMM., Pl. Col., 1821, pl. lxvi, fig. 1 ("Brésil").

Gouldia langsdorffi, SCL., 1854, p. 111 (Quijos).

Popelairia langsdorffi, OBERH., 1902, p. 342 (Coca).

RANGE.—Tropical Zone; from southeastern Brazil to Peru and eastern Ecuador.

Simon recognizes an upper Amazonian form, *melanosternum* (Gould). We have no specimens from that region.

(1447) *Popelairia conversii æquatorialis* (Berl. & Tacz.)

Gouldia conversi æquatorialis BERL. & TACZ., P. Z. S., 1883, p. 567 (Chimbo).

Popelairia conversi æquatorialis, HART., 1898, p. 494 (Chimbo); OBERH., 1902, p. 342 (Santo Domingo; Nanegal).

Popelairia conversi, SIMON, 1907, p. 23 (Santo Domingo).

Bucay (Rhoads).

Esmeraldas, 1 ♀; Bucay, 1 ♂, 1 ♀; Chimbo, 2 ♂, 1 ♀; La Chonta, 1 ♂.

RANGE.—Tropical Zone: the species, Costa Rica to southwestern Ecuador; the race, western Ecuador and southwestern Colombia.

Two adult males have the bluish tinge on the chest said to distinguish this form from true *conversi* of the Bogotá region.

ORDER TROGONES

FAMILY TROGONIDÆ. TROGONS

(1451) *Pharomachrus antisimensis* (d'Orb.)

Trogon antisimensis D'ORB., Voy. Amer. Merid. Ois., 1835-1844, p. 38, pl. 66, fig. 1 (Yungas, Bol.).

Pharomachrus antisimensis, SCL., 1858a, p. 60 (Napo) B. & T., 1884, p. 308 (Cayandeled); ALLEN, 1889, p. 75 (Pirca); HART., 1898, p. 499 (Urabi, San José de Minas; Milligalli); L. & R., 1922, p. 62 (near Baeza; near Piganta; Alonguinche; Milligalli).

Pharomachrus antisianus, SCL., 1860a, p. 70 (Pallatanga); GOODF., 1902, p. 212 (Intac; Baeza).

Baeza, 6 ♂; Rio Sardinas, 1 ♂; Macas region, 1 ♂; San José de Sumaco, 1 ♂.

RANGE.—Subtropical Zone, Bolivia to Venezuela; eastern and western Ecuador.

I have no Bolivian material for comparison. A male from San José de Sumaco has much more black on the outer three rectrices than is usual.

(1452) *Pharomachrus auriceps auriceps* (Gould)

Trogon auriceps GOULD, Ann. & Mag. Nat. Hist., IX, 1842, p. 238 ("Quito" = eastern Andes of Ecuador).

Calurus auriceps, SCL., 1854, p. 110 (Quijos).

Pharomachrus auriceps, SCL., 1858a, p. 60 (Napo); GOODF., 1902, p. 212 (East Andes).

Pharomachrus heliactin, B. & T., 1885, p. 107 (Machay).

Above Baeza, 2 ♂, 1 ♀; Baeza, 1 ♂, 2 ♀; below Baeza, 2 ♂, 4 ♀; east of Ambato, 2 ♂; San José, 1 ♂.

RANGE.—Subtropical Zone: the species, Peru to Venezuela; eastern and western Ecuador.

Birds from the eastern and western Andes are alike in color, but those from the eastern Andes, as the appended measurements show, are constantly the larger; and, so far as Ecuador is concerned, two races, therefore, may be recognized on this character of size. When, however, we attempt to use this character in determining specimens from other localities, it is found to be too inconstant to be truly diagnostic. Specimens from western Colombia agree with those from western Ecuador; and those from the Mérida region of Venezuela are like those of eastern Ecuador; but those from northwestern Peru agree with those of eastern rather than western Ecuador, and, conversely, three from eastern Peru are nearer the western Ecuadorean than the eastern Ecuadorean form. Under the circumstances I am by no means convinced that *heliactin*

should be accepted, but, assuming that it is desirable to recognize two races of this species, it remains to determine to which of them Gould's name, based on a bird from "Quito," applies. There are four Gould specimens in the British Museum, all labeled "Quito," but only one of them is as large as his measurements, and this specimen agrees with the figure in his monograph of this family, having the whole head distinctly coppery, quite different from the green back. The measurements alone, however, indicate that Gould's type came from eastern rather than western Ecuador, since only eastern Ecuadorean specimens attain the size of his type and, even then, only by flattening the wing and measuring the tail from below.

<i>Measurements of Males</i>		Wing	Tail
Locality		mm.	mm.
Above Baeza, eastern Ecuador		200	186
Above Baeza, eastern Ecuador		193	170
East of Ambato, eastern Ecuador		195	181
East of Ambato, eastern Ecuador		200	171
Gualea, western Ecuador		189	168
Gualea, western Ecuador		187	165
Zaruma, western Ecuador		179	162
Zaruma, western Ecuador		185	168
Palambra, northwestern Peru		192	183
Palambra, northwestern Peru		195	179
Palambra, northwestern Peru		189	177
Utcuyacu, eastern Peru		183	168
Chelpes, eastern Peru		190	173
Machu Picchu, eastern Peru		188	175

(1454) *Pharomachus auriceps heliactin* Cab. & Heine

P[haromacrus] heliactin CAB. & HEINE, Mus. Heine, IV, 1863, p. 267 (Nanegal, Ec.).

Pharomacrus auriceps, SCL., 1859a, p. 144 (Pallatanga); 1860c, p. 93 (Nanegal); HART., 1898, p. 499 (Milligalli); S. & F., 1900, p. 16 (Intac); GOODF., 1902, p. 212 (West Andes, 4,000 ft.).

Pharomacrus heliactin, B. & T., 1884, p. 308 (Cayandeled).

Pharomacrus pavoninus, ALLEN, 1889, p. 75 (Milligalli).

Pharomacrus auriceps heliactin, L. & R., 1922, p. 62 (below Milligalli; near Mindo).

Gualea, 3♂, 1♀; La Chonta, 1♂, 1♀; El Chiral, 2♂; above Zaruma, 5♂; Punta Santa Ana, 1♂, 1♀; Alamor, 2♂.

RANGE.—Subtropical Zone; western Ecuador.

While questioning the validity of this form, to which I am unable to ascribe a range, I include it provisionally as a means of allocating Gould's name and other Ecuadorean records.

(1456) **Pharomachrus pavoninus** (Spix)

Trogon pavoninus SPIX, Av. Bras., I, 1824, p. 47, pl. xxxv ("in sylvis Tabatingæ et Maribitanas").

Pharomacrus pavoninus, GRANT, Cat. Bds. B. M., XVII, 1892, p. 436 (Sarayacu).

RANGE.—Tropical Zone; upper Amazonia.

We have no Ecuadorean specimens.

(1457) **Trogonurus personatus personatus** (Gould)

Trogon personata GOULD, Ann. & Mag. Nat. Hist., 1842, p. 237 ("Cordillerian Andes").

Trogon personatus propinquus, B. & T., 1885, p. 107 (Machay; Baños).

East of Ambato, 1 ♂, 1 ♀; Baeza, 2 ♂; below Baeza, 1 ♀.

RANGE.—Subtropical Zone: the species, Santa Marta and western Venezuela to Bolivia; Roraima; the race, western Venezuela through the East and Central Andes of Colombia to eastern Ecuador and eastern Peru.

Trogon personatus may be readily distinguished from *T. temporatus* by its much larger bill, the greater number and regularity of the bars on the rectrices, and, in the female, brown instead of white vermiculations on the wings. There appear to be two races of this species in Ecuador, an eastern and a western subtropical, while in the humid Temperate Zone it is represented by *T. temporatus* (see beyond, 1457b).

In the eastern form, the male has the white bars of the rectrices and the vermiculations on the wings much broader and stronger; while the vermiculations on the wings of the female are much browner, the brown and black bars being of about equal extent, whereas in the western form the black prevails. Specimens from Peru (Chaupe; Chelpe; Rumicruz; Santo Domingo), from the Central and East Andes in Colombia, Santa Marta and the Mérida region of western Venezuela, I should place with the eastern Ecuadorean form. The less strongly barred race seems to be confined to western Ecuador, but western Colombian birds are intermediate and may prove to belong to the race of western Ecuador. The difference in males of the two forms is well shown in Gould's plate of "*Trogon personatus*" in which the left-hand male resembles the eastern bird, while the right-hand figure agrees with the western bird.

The selection of names for these two races presents some difficulties. The specimen ("C") listed as the type of *personatus* in the Catalogue of the British Museum, has a label attached to it with a bit of plant-fiber (evidently in the field) and bears only the locality "Peru." This is

probably the type of Gould's *assimilis*, and the right-hand figure in his plate above mentioned. Apparently it was the only bird in his collection labeled as having come from Peru. It agrees with his description of *assimilis* and also with the western Ecuadorean bird, and I accept the name *assimilis*, therefore, for the form of western Ecuador under the assumption that the locality "Peru", on what I believe to be the type, is an error.

For the bird of eastern Ecuador I accept Gould's name *personatus*. Described in 1842, it is not probable that his type from the "Cordillerian Andes" came from Quito, for we have no record of specimens being sent from that city at so early a date. Since Colombian and Peruvian birds are alike, it seems immaterial whether Gould's type came from one or the other, but as the only "Peruvian" specimen in his collection is, in my opinion, as expressed above, the type of *assimilis*, and as he had specimens from Bogotá, I suggest that region as the type-locality for *personatus*.

Our specimens indicate the occurrence of but one form of this bird in Peru and indicate that *heliiothrix* Tsch. is a synonym of *personatus*.

Taczanowski recognizes both forms as occurring in Peru, and writes that *heliiothrix* differs from *propinquus* [= *assimilis*] by "une nuance bleuâtre sur le vert de la tête, du corps et des rectrices médiane, le bec plus comprimé et moins gros," but these differences may be individual.

A female from Incachaca, Bolivia, resembles *personatus personatus*, but a male from the same locality has the tail as unbarred as in *temperatus*.

(1457a) *Trogonurus personatus assimilis* (Gould)

Trogon assimilis GOULD, P. Z. S., 1846, p. 67 ("Peru," type in British Museum examined).

Trogon propinquus CAB. & HEINE, Mus. Heine, IV, 1863, p. 175 (Puellaró).

Trogon personatus, JARD., 1855, p. 117 (between 7,000 and 9,000 ft.); SCL., 1859a, p. 144 (Pallatanga); ? 1860c, p. 93 (above Puellaró ?); HART., 1898, p. 499 (Chimbo; Paramba); MEN., (Pachigal); L. & R., 1922, p. 62 (Canchacoto; Mindo; Guala; Piganta).

Trogon personatus propinquus, B. & T., 1884, p. 307 (Cayanded; Chaguarpata). Pagma Forest (Rhoads).

Guala, 2♂, 2♀; El Chiral, 1♂, 2♀; Zaruma, 1♂.

RANGE.—Subtropical Zone; the race, western Ecuador (and western Colombia ?).

The status of this race is discussed under the preceding form.

(1457b) *Trogonurus temperatus* Chapm.

Trogonurus temperatus CHAPM., Amer. Mus. Novit. No. 96, 1923, p. 2 (Laguneta, 10,300 ft., Cen. Andes, Col.).

Trogon personatus, SCL., 1858c, p. 555 (Matos); S. & F., 1900, p. 17 (Huaca; Pun); GOODF., 1902, p. 211 (E. and W. Andes, 9,000 to 11,500 ft.).

Trogon personatus propinquus, B. & T., 1885, p. 107 (San Rafael).

Above Baeza, 3 ♂, 6 ♀; below Papallacta, 1 ♂; Oyacachi, 2 ♂, 2 ♀; upper Sumaco, 1 ♂, 1 ♀.

Specific Characters.—Similar to *Trogonurus personatus personatus* (Gould), but bill much smaller; male with the bars of the lateral rectrices narrow, indistinct, and confined largely or wholly to outer webs of the feathers; central rectrices less brassy, crown bluer; female with vermiculations on the wing white instead of brown.

RANGE.—Humid Temperate Zone of Colombia (all three ranges), Ecuador (and Peru?).

This species is apparently a zonal representative of *T. personatus*. To it I formerly applied the name *assimilis* (Gould). Examination of Gould's type (the only Peruvian specimen in the Gould collection), however, shows that it agrees with specimens of *personatus* from western Ecuador, which differ from Colombian ones in having the tail in the male less distinctly barred with white, and the status of which is discussed under the preceding form.

This species was long confused with *personatus*, and I have allotted what I believe to be references to it on the basis of altitude.

It is possible that *propinquus* of Cabanis and Heine, from Puellaro, may be this species, but it is described as having the bill larger and stronger than in *personatus*, whereas in *temperatus* it is smaller, and there are also differences in color to which neither Cabanis, nor Berlepsch and Taczanowski (P. Z. S., 1884, p. 307) refer.

(1458) *Trogonurus collaris collaris* (Vieill.)

Trogon collaris VIEILL., Nouv. Dict. d'Hist. Nat., VIII, 1817, p. 330 (Cayenne); S. & F., 1900, p. 17 (Cuchibamba; Valle del Rio Santiago).

Zamora, 3 ♂; Cutervo, near Macas, 1 ♂; Rio Suno, 2 ♂, 1 ♀; below San José, 2 ♂, 1 ♀.

RANGE.—Tropical Zone, Bolivia to Guiana.

The outer rectrices are more narrowly barred than in a male from Trinidad.

(1459) *Trogonurus collaris virginalis* (Cab. & Heine)

Trogon virginalis CAB. & HEINE, IV, 1863, p. 173 (Pallatanga); B. & T., 1883, p. 572 (Chimbo); 1884, p. 307 (Pedregal); S. & F., 1900, p. 17 (Rio Peripa).

Trogon collaris, SCL., 1860a, p. 69 (Pallatanga); GOODF., 1902, p. 211 (Gualea; Nanegal).

Trogon collaris virginalis, MEN., 1911, p. 18 (Santo Domingo); L. & R., 1922, p. 63 (Mindo; Gualea).

Bucay (Rhoads).

Rio de Oro, 1♂; Rios Chimbo and Coco, 1♂; La Chonta, 1♂, 1♀; Zaruma, 2♂, 1♀; Las Piñas, 1♂.

RANGE.—Tropical and Subtropical Zones: the species, Amazonia, Ecuador, and Colombia; the race, western Ecuador and western Colombia. Represented from western Panama to southern Mexico by *T. puella*.

Lacking topotypical material of true *collaris*, I cannot satisfactorily determine the range of variation in this species. Compared with eastern Ecuador and Trinidad specimens those from western Ecuador and western Colombia have, as a rule, the tail more narrowly tipped with white, with the white bars on the lateral rectrices narrower than the black ones, instead of equaling them in width.

(1460) *Trogonurus curucui* subsp.

[*Trogon*] *curucui* LINN., Syst. Nat. I, 1766, p. 167.

Trogon atricollis, GOODF., 1902, p. 212 (Rio Coca).

RANGE.—Tropical Zone: the species Paraguay to Honduras.

We have no specimens from Ecuador.

(1460a) *Trogonurus curucui cupreicauda* Chapm.

Trogonurus curucui cupreicauda CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 606 (Bagado, Chocó, Col.).

Trogon atricollis, S. & F., 1900, p. 17 (Rio Peripa); GOODF., 1902, p. 212 (Gualea); MEN., 1911, p. 19 (Santo Domingo).

Trogon curucui subsp. *atricollis*, L. & R., 1922, p. 63 (Gualea).

RANGE.—Tropical Zone: the species, Paraguay to Honduras; the race, western Colombia and western Ecuador.

Barbacoas, southwestern Colombian specimens are referable to this form, and I therefore assume that the western Ecuadorean bird is also.

(1467) **Trogonurus bolivianus** (Grant)

Trogon bolivianus GRANT, Cat. Bds. B. M., XVII, 1890, p. 470, pl. xv (Cosnipata, Peru).

Trogonurus bolivianus, CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 316 (crit.); Bull. U. S. N. M., 117, 1921, p. 71 (crit.).

"Ecuador," 1.

RANGE.—Tropical Zone, Bolivia to southeastern Colombia.

I have elsewhere expressed my views regarding the relationships of this species.

(1461) **Trogon strigilatus strigilatus** Linn.

Trogon strigilatus LINN., Syst. Nat., I, 1766, p. 167 (Cayenne) = *T. viridis* AUCT., cf. RIDGW., Bull. 50, V, p. 751.

Trogon melanopterus, SCL., 1854, p. 110 (Quijos).

Trogon viridis, SCL., 1858a, p. 60 (Napo); S. & F., 1900, p. 17 (Valle del Rio Santiago); GOODF., 1902, p. 212 (Rio Coca).

Rio Suno, 4 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, Bolivia to Guiana and Panama; the race, east of the Andes.

Eastern Ecuadorean specimens agree with a series from British Guiana.

(1462) **Trogon strigilatus chionurus** Scl. & Salv.

Trogon chionurus SCL. & SALV., P. Z. S., 1870, p. 843 (Lion Hill, Panama); HART., 1898, p. 499 (Cachaví); S. & F., 1900, p. 17 (Rio Peripa).

Trogon viridis chionurus, MEN., 1911, p. 19 (Tanti, road from Quito to Santo Domingo).

Trogon strigilatus chionurus, L. & R., 1922, p. 63 (Santo Domingo).

Rio de Oro, 2 ♂, 1 ♀.

RANGE.—Tropical Zone; Ecuador and Colombia, west of the Andes; Panama.

These birds agree with Panama specimens.

(1463) **Chrysotrogon caligatus caligatus** (Gould.)

Trogon caligatus GOULD, Mon. Trog., 1838, pl. vii (no locality); SCL., 1860d, p. 284 (Babahoyo); TACZ., 1877, p. 328 (Lechugal); HART., 1898, p. 499 (Chimbo).

Esmeraldas, 4 ♂, 2 ♀; coast of Manaví, 2 ♀; Chongon Hills, 1 ♂; Portovelo, 1 ♂.

RANGE.—Tropical Zone: the species, Guiana and western Ecuador to Mexico; the race, western Ecuador, western Colombia to southeastern Mexico.

Ecuadorian specimens agree in color with those from Central America but average smaller. *C. caligatus columbianus*, of the Magdalena Valley and Santa Marta region, is an intermediate between this form and *C. caligatus meridionalis* of northern South America.

(1465) **Chrysotrogon ramonianus ramonianus** (*Dev. & Des Murs*)

Trogon ramoniana DEV. & DES MURS, Rev. Zoöl., 1849, p. 331 (Sarayacu, Ec.).

Trogon ramonianus, SCL., 1858a, p. 60 (Napo); ALLEN, 1899, p. 75 (Rio Napo); GOODF., 1902, p. 212 (Rio Coca).

'Napo,' 1 ♂.

RANGE.—Tropical Zone: the species, Amazonia; the race, upper Amazonia.

A representative of *C. caligatus*.

(1470) **Curucujus melanurus melanurus** (*Swains.*)

Trogon melanurus SWAINS., Anim. in Menag., III, 1838, p. 329 (Demerara, British Guiana).

Trogon macrurus, GOODF., 1902, p. 212 (Rio Coca).

Below San José, 1 ♂; Rio Suno, 1 ♂.

RANGE.—Tropical Zone: the species, Bolivia to Guiana and Panama; the race, east of the Andes.

(1470a) **Curucujus melanurus mesurus** (*Cab. & Heine*)¹

Troctes mesurus CAB. & HEINE., Mus. Heine, IV, 1863, p. 202 (Babahoyo).

Trogon melanurus, SCL., 1860d, p. 284 (Babahoyo); TACZ., 1877, p. 328 (Lechugal); S. & F., 1900, p. 17 (Babahoyo; Vines; Balzar; Rio Peripa).

Curucujus melanurus pacificus CHAPM., Amer. Mus. Novit., No. 96, 1923, p. 4 (Alamor, Ec.).

Esmeraldas, 2 ♂, 1 ♀; Chone, 3 ♂, 1 ♀; Rio de Oro, 1 ♂; Chongoncito, 3 ♂, 1 ♀; Chongon Hills, 1 ♂; Daule, 2 ♂, 1 ♀; Santa Rosa, 1 ♂, 2 ♀; Las Piñas, 2 ♀; Rio Pul-lango, 2 ♂; Cebollal, 1 ♂; Alamor, 5 ♂, 1 ♀; Celica, 1 ♀. Peru: Paletillas, 3 ♂, 1 ♀; Palambla, 2 ♂.

RANGE.—Both arid and humid Tropical Zone of western Ecuador and north-western Peru, ranging upward to the Subtropical Zone.

The form of this Trogon inhabiting western Ecuador has heretofore been referred to *melanurus melanurus* of Amazonia, doubtless because of its agreement in size with that race, rather than with the larger *macrourus* of northern Colombia and elsewhere.

Dr. Hellmayr tells me that he has examined Cabanis' type.

Faunally, it is nearer the latter than the former from which, indeed, its range is separated by the Andes. In color, *mesurus* is nearer *macrourus*, and while thus intermediate between *macrourus* and *melanurus*, it differs from them both in certain characters (vermiculation of wing, white barring on breast of female, etc.) in which they agree, making it difficult to decide to which one of the two it is more closely related.

ORDER COCCYZES

FAMILY CUCULIDÆ. CUCKOOS, ANIS

(1473) *Coccyzus landsbergi* Bonap.

Coccyzus landsbergi BONAP., Consp. Av., I, 1850, p. 112 (Bogotá, Col.); B. & T., 1885, p. 108 (Yaguachi).

Rio de Oro, 2♂; Chone, 1♂; Santa Elena, 1♂; Daule, 2♂, 1♀, 1?; Guayaquil, 1♀.

RANGE.—Tropical Zone, western Ecuador to Venezuela.

This species has hitherto been regarded as rare but it is apparently not uncommon in western Ecuador. Our Ecuadorean specimens agree with one from Santa Marta and one from Puerto Cabello.

(1475) *Coccyzus melacoryphus* Vieill.

Coccyzus melacoryphus VIEILL., Nouv. Dict. d'Hist. Nat., VIII, 1817, p. 271 (Paraguay).

Coccyzus melanocoryphus, S. & F., 1900, p. 21 (La Concepcion); GOODF., 1902, p. 215 (Rio Coca); MEN., 1911, p. 20 (Tumbaco); L. & R., 1922, p. 63 (Cumbaya).

La Plata Is., 1♀; Daule, 1♀; Rio Suno, 3♂, 2♀.

RANGE.—Argentina to Colombia; western Ecuador and western Peru; Galapagos Is.

In view of its presence in the Galapagos and of an allied form (*C. ferrugineus*) on Cocos Island, the occurrence of this species on La Plata Island is interesting. The Daule specimen has the mandible basally yellow, emphasizing its close relationship to *C. minor*.

(1476) *Coccyzus americanus americanus* (Linn.)

Cuculus americanus LINN., Syst. Nat., I, 1758, p. 111 (Carolina).

Coccyzus americanus, B. & T., 1883, p. 572 (Chimbo); L. & R., 1922, p. 63 (below Nono, April 23; Cumbaya, Dec., March, April 1 and 20).

Coccyzus americanus occidentalis, L. & R., 1922, p. 63 (Guápulo, March 24).

RANGE.—Breeds in eastern North America from the Gulf States to Canada; winters as far south as Ecuador.

In view of Ridgway's statement that *C. a. occidentalis* winters southward only to Costa Rica, I place all Ecuadorean records under *C. a. americanus*. We have no Ecuadorean specimens.

(1478) *Coccyzus erythrophthalmus* (Wils.)

Cuculus erythrophthalmus WILS., Amer. Orn., IV, 1811, p. 16 (Philadelphia).

Coccyzus erythrophthalmus, TACZ., 1877, p. 328 (Lechugal); L. & R., 1922, p. 63 (Guápulo, April 3; near Carolina, April 28).

Daule, 1 ♂ (April 23), 1 ♀ (April 27); Puna Is., 1 ♂ (April 12).

RANGE.—Breeds in eastern North America; south, in winter, as far as eastern and western Peru.

(1484) *Piaya cayana nigricrissa* (Cab.)

Pyrhococcyx nigricrissa CAB., J. f. O., 1862, p. 169 (Babahoyo or Esmeraldas w. Ec.).

Piaya nigricrissa, SCL., 1860d, p. 285 (Babahoyo); 1860e, p. 297 (Esmeraldas); TACZ., 1877, p. 328 (Lechugal).

Piaya mehleri, SCL., 1859a, p. 146 (Pallatanga); 1860c, p. 95 (Nanegal); GOODF., 1902, p. 215 (Santo Domingo and San Nicolas specimens only).

Piaya cayana, B. & T., 1883, p. 572 (Guayaquil); S. & F., 1901, p. 21 (Rio Peripa specimens only).

Piaya cayana mesura, B. & T., 1884, p. 308 (Surupata).

Piaya cayana mehleri, HART., 1898, p. 499 (Chimbo; Paramba).

Piaya cayana nigricrissa, MEN., 1911, p. 20 (Santo Domingo; Gualea); CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 320 (crit.); L. & R., 1922, p. 63 (road to Gualea; Mindo, Canchacoto; Santo Domingo).

Junction Chanchan and Chiguancay (Rhoads).

Esmeraldas, 4 ♂, 1 ♀; Rio de Oro, 1 ♂; Gualea, 1 ♂, 1 ♀; Daule, 1 ♀; Chongoncito, 1 ♂; Naranjo, 1 ♂; Rio Jubones, 1 ♀; El Chiral, 1 ♀ ?; Santa Rosa, 1 ♀; Portovelo, 1 ♀; Zaruma, 1 ♂; Rio Pindo, 1 ♀; Lunamá, 1 ♀; San Bartolo, 1 ♀; Celica, 1 ♀.

RANGE.—Chiefly Tropical Zone: the species, Paraguay to Mexico; the race, Tropical upward to Subtropical Zone, northwestern Peru, western Ecuador and western Colombia.

I find no reason to change the view in regard to the name and relationships of this form previously expressed (*loc. cit.*).

(1485) *Piaya cayana mesura* (Cab.)

Pyrhococcyx mesurus CAB., Mus. Heine, IV, I, 1862, p. 83 (Bogotá).

Piaya cayana, SCL., 1854, pl. 115 (Quijos); S. & F., 1900, p. 21 (Gualaquiza specimens only).

Piaya meheri, SCL., 1858a, p. 75 (Napo); 1858b, p. 460 (Gualaquiza; Zamora); GOODF., 1902, p. 214 (Rio Cosanga, below Baeza, and Rio Coca specimens only).

Piaya cayana mesura, B. & T., 1885, p. 108 (Mapoto); CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 321 (crit.).

Zamora, 1 ♂; Sabanilla, 1 ♀; Macas region, 3; Baeza, 1 ♀; below Oyacachi, 1 ♂, 1 ♀; Rio Suno, 3 ♂, 2 ♀; lower Sumaco, 1 ♀.

RANGE.—Tropical to Subtropical Zone, eastern Ecuador, eastern Colombia, and head of Magdalena Valley, Colombia.

Eastern Ecuadorean birds average darker above and have more black on the ventral region than those from east of Bogotá, but these differences are not sufficiently constant to warrant their separation. I have previously (*loc. cit.*) given my reasons for applying the name *mesura* to this form.

(1489) ***Piaya melanogaster* (Vieill.) subsp.?**

Cuculus melanogaster VIEILL., Nouv. Dict. d'Hist. Nat., VIII, 1817, p. 236 (Guiana).

Piaya melanogastra, SCL., Cat. Bds. B.M., XIX, 1891, p. 377 (Sarayacu—Buckley).

RANGE.—Peru to Guiana.

We have no Ecuadorean specimens and I am unable to say, therefore, whether the Ecuadorean bird should be referred to true *melanogaster* or *P. m. ochracea* Cory¹ from Yurimaguas, Peru.

(1490) ***Coccyua rutila rutila* (Ill.)**

Cuculus rutilus ILL., Abh. Berl. Akad. Wiss., 1812, p. 224 (Cayenne).

Piaya minuta, S. & F., 1900, p. 21 (Gualaquiza spp. only).

Macas region, 1; Rio Suno, 1 ♀.

RANGE.—Tropical Zone: the species, Amazonia to Panama; the race, Amazonia.

These specimens agree fairly well with Cayenne birds, from which, also, I am unable to separate examples from Villavicencio, Colombia, and the lower Orinoco, including the type of *C. r. orinocensis* (Cherrie).²

(1490a) ***Coccyua rutila gracilis* (Heine)**

Coccyzus gracilis HEINE, J. f. O., 1863, p. 356 (Esmeraldas).

Piaya rutila, SCL., 1860d, p. 285 (Babahoyo); 1860e, p. 297 (Esmeraldas); TACZ., 1877, p. 333 (Palmar); B. & T., 1883, p. 572 (Chimbo); MEN., 1911, p. 21 (Santo Domingo; Gualaia).

¹ Field Mus. Pub. No. 183, 1915, p. 304.

² Bull. Amer. Mus. Nat. Hist., XXXV, 1916, p. 393.

Piaya minuta, S. & F., 1900, p. 21 (Vinces spp. only); GOODF., 1902, p. 215 (Santo Domingo).

Piaya rutila gracilis, L. & R., 1922, p. 64 (near Gualea).

Esmeraldas, 2♂, 4♀; Rio de Oro, 2♂, 3♀, 2?; Manaví, 1?; Naranjo, 1♀, 1?; Bucay, 2♀.

RANGE.—Tropical Zone: the race, western Ecuador and Colombia west of the eastern Andes.

Distinguished from *C. r. panamensis*, its nearest ally, by its generally paler colors, especially below.

(1492a) ***Neomorphus salvini æquatorialis* Chapm.**

Neomorphus salvini æquatorialis CHAPM., Am. Mus. Novit., No. 67, 1923, p. 5 (Huilca, Ec.).

Neomorphus salvini, SCL., Cat. Bds. B. M., XIX, 1891, p. 417 (Rio Cotopaza—Buckley).

Huilca, 1 (type); Rio Suno, 1 juv. (April); below San José, 1♂; San José de Sumaco, 2♂.

RANGE.—Tropical Zone; the species, Nicaragua through western Colombia to eastern Ecuador; the race, eastern Ecuador.

Subspecific Characters.—Similar to *Neomorphus salvini salvini* of Nicaragua, but pectoral band broader and complete, the crown less rufescent, Sardo's umber rather than sayal-brown or tawny olive.

It is surprising that the eastern Ecuadorean representative of this genus should represent the Central American species while the western Ecuadorean form is quite distinct (see, however, Lönnberg and Rendahl's remarks below). The body plumage of the young bird is uniformly sooty. A molt in progress shows that the adult plumage immediately follows the juvenal.

(1495) ***Neomorphus radiolosus* Scl. & Salv.**

Neomorphus radiolosus SCL. & SALV., P. Z. S., 1878, p. 439, pl. xxvii ("Intaj," Ec.); HART., 1898, p. 499 (Paramba); L. & R., 1922, p. 64 (Gualea).

RANGE.—Northwestern Ecuador.

In addition to the type I find only two specimens of this bird recorded, one in the Tring Museum, the other in the Royal Natural History Museum at Stockholm. Of the latter, Lönnberg and Rendahl (*loc. cit.*) remark: "This specimen possesses a well-defined black band across the breast, which otherwise, as well in front as behind this band, is barred with white."

(1496) *Tapera nævia excellens* (Scl.)

Diplopterus excellens SCL., P. Z. S., 1857, p. 229 (Mexico).

Diplopterus nævius, SCL., 1860, p. 285 (Babahoyo); B. & T., 1883, p. 572 (Chimbo); 1885, p. 108 (Yaguachi); S. & F., 1900, p. 21 (Babahoyo; Vines); MEN., 1911, p. 21 (upper Napo).

Tapera nævia excellens, L. & R., 1922, p. 64 (Fanti, road to Manaví).

Daule, 1 ♂; Duran, 1 ♂; Santa Rosa, 2 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, Paraguay to southern Mexico; the race, western Ecuador to southern Mexico.

The wing in four males ranges from 113 to 121 mm., and in size these birds, therefore, agree with the northern *excellens* and southern *chochi* of Paraguay, etc. As I am unable to discover any constant difference between these forms, I refer our birds to *excellens* for purely faunal reasons.

(1497) *Dromococcyx pavoninus* (Pelz.)

Diplopterus pavoninus PELZ., Orn. Bras., 1871, p. 270 (Araguay, Brazil).

Rio Suno, 1 ♂.

RANGE.—Probably Amazonia. Known only from southern Brazil to the Guianas; eastern Ecuador.

Not before recorded from Ecuador.

(1499) *Crotophaga ani* Linn.

Crotophaga ani LINN., Syst. Nat., I, 1758, p. 105 (Brazil); SCL., 1860d, p. 285 (Babahoyo); B. & T., 1885, p. 108 (Yaguachi); HART., 1898, p. 500 (San Pedro); S. & F., 1900, p. 22 (La Concepcion; Vines); GOODF., 1902, p. 214 (Santo Domingo; Archidona); MEN., 1911, p. 21 (upper Napo).

Near Bucay, 1 ♀; Santa Rosa, 1 ♂, 1 ♀; Portovelo, 1 ♂; Rio Pindo, 1 ♀; below San José, 2 ♂.

RANGE.—Argentina north to Panama and through West Indies to Bahamas; Pacific coast of South America only in Colombia and Ecuador.

In view of the somewhat promiscuous sexual customs of this species and of *C. sulcirostris*, it is interesting to find two such closely related species associating and retaining their specific distinctness.

(1500) *Crotophaga major* Gmel.

Crotophaga major GMEL., Syst. Nat., I, 1788, p. 363 (Cayenne); S. & F., 1900, p. 22 (Valle del Zamora).

RANGE.—Tropical Zone: Argentina to eastern Panama; eastern but not western Ecuador.

We have no Ecuadorean specimens.

(1501) *Crotophaga sulcirostris* Swains.

Crotophaga sulcirostris SWAINS., Phil. Mag. (2), I, 1827, p. 440 (Mexico); SCL., 1860d, p. 285 (Babahoyo); 1860e, p. 297 (Esmeraldas); LAW., 1869, p. 238 (Puna Is.); TACZ., 1877, pp. 328, 753 (Tumbez); S. & F., 1900, p. 22 (Savana de Guayaquil; Vines; Balzar; Rio Peripa).

Bucay (Rhoads).

Chongoncito, 1 ♀; Puna Is., 1 ♀, 1 ?; Rio Jubones, 1 ♀; Santa Rosa, 1 ♂; Portovelo, 2 ♂, 1 ♀; Casanga, 1 ♂; Alamor, 1 ♂, 1 ♀; Celica, 1 ♀; Lunamá, 1 ♀; Loja, 1 ♂.

RANGE.—Chiefly Tropical Zone: the species, coasts of Peru, Ecuador, and Colombia, east through northern South America to the Orinoco and British Guiana, north through Central America to southern Texas and Lower California.

In specimens from the coast of Peru (*C. casarii* Less.) the bill averages smaller, its height at the nostril less, the culmen less elevated to a blade-like edge than in those from Mexico, but this difference is so affected by age that to recognize it nomenclaturally would make it impossible accurately to name specimens unless one knew definitely their respective ages.

The capture of this species at Loja is an interesting instance of the occurrence inland of what in this latitude is a Pacific coast form.

ORDER SCANSORES

FAMILY CAPITONIDÆ. BARBETS

(1503) *Capito aurovirens* (Cuv.)

Bucco aurovirens CUV., Regne Anim., I, 1829, p. 458 (Peru).

Capito aurovirens, SCL., Cat. Bds. B. M., XIX, 1891, p. 109 (Andoas—Buckley).

RANGE.—Tropical Zone; upper Amazonia.

Known from Ecuador only from Buckley's specimen. We have six specimens from La Morelia, southeastern Colombia.

(1505) *Capito squamatus* Salv.

Capito squamatus SALV., Ibis, 1876, p. 494, pl. xiv (Santa Rita, Ec.); GOODF., 1902, p. 218 (Santo Domingo).

Esmeraldas, 1 ♂, 1 ♀; Chone, 2 ♂, 1 ♀; Chimbo, 1 ♀.

RANGE.—Tropical Zone; western Ecuador to southwestern Colombia.

This rare species combines in an interesting manner the characters of both *C. hypoleucus* of the lower Cauca-Magdalena region of Colombia

and *C. maculicoronatus* of northwestern Colombia and Panama. In the red forehead, whitish crown, and whitish underparts of the male, it resembles the former, but whereas in *hypoleucus* the sexes are alike, in *squamatus* the female agrees with that of *maculicoronatus* in having the throat and breast solid black. The male of *squamatus* agrees with both sexes of *maculicoronatus* in having the upperparts uniform black, and in both sexes of both species the crown is margined posteriorly with brown.

The specimen described and figured by Salvin is a female. The male resembles the female but the back, upper tail-coverts, and wing-coverts are uniform black without white rings, the inner wing-quills are more definitely marked with white and their tips are solid black, the underparts are white with a tinge of yellow on the breast and flanks and a few black spots on the latter.

An adult male from Ricuarte, southwestern Colombia, in its deeper red forehead and narrower white crown area, approaches *hypoleucus*.

(1509) **Capito peruvianus** (Cuv.)

Bucco peruvianus CUV., Regne Anim., I, 1817, p. 428 (Peru); cf. RIDGW., Bull. U. S. N. M., No. 50, VI, 1914, p. 321.

Capito amazonicus DEV. & DES MURS, Rev. et Mag. Zool., 1849, p. 171 (Santa Marta and Ega); MEN., 1911, p. 22 (upper Napo).

Capito peruvianus, SCL., 1854, p. 115 (Quijos); 1858a, p. 75 (Napo).

'Napo,' 1 ♂, 1 ♀.

RANGE.—Upper Amazonia.

I follow Ridgway (*loc. cit.*) in accepting Cuvier's name *peruvianus* for this species.

(1510) **Capito auratus auratus** (Dumont)

Bucco auratus DUMONT, Dict. Sci. Nat., IV, 1816, p. 54 (Peru).

Capito punctatus, GOODF., 1902, p. 218 (Archidona; Rio Coca).

Capito auratus, MEN., 1911, p. 22 (upper Napo).

Macas region, 1 ♂, 1 ♀; Rio Suno, 5 ♂, 4 ♀; below San José, 4 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, Bolivia to Venezuela; the race, eastern Peru to eastern Colombia.

These birds resemble Colombian specimens, but the crown in the male averages yellower. A male from Perené, Peru, has the throat deeper orange, more sharply defined from the yellow breast, and with few spots on the flanks. A female from Montealegre, Rio Pachita, has the orange markings of the crown, wing-coverts, and throat deeper than

in Ecuadorean and Colombian females. I am by no means certain that the Perené and Montealegre specimens represent the same race, but if their differences from the Ecuadorean and Colombian birds are constant, the latter appear to be separable from them.

(1513) **Eubucco richardsoni** (Gray)

Capito richardsoni GRAY, Gen. Bds., II, 1846, p. 430, pl. 106 (Ecuador); ALLEN, 1889, p. 76 (Rio Napo); GOODF., 1902, p. 218 (Archidona); MEN., 1911, p. 23 (Gualaquiza).

Rio Suno, 5 ♂, 2 ♀; below San José, 4 ♂, 5 ♀.

RANGE.—Tropical Zone; eastern Ecuador and eastern Colombia.

A Colombian form, *E. r. granadensis* (Scl.), is said to have a black instead of red chin-spot, but two males from Villavicencio, east of Bogotá, can be exactly matched by specimens from Ecuador. I therefore query the validity of the proposed form.

(1519a) **Eubucco bourcieri orientalis** (Chapm.)

Capito orientalis CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 609 (Zamora, Ec.)

Eubucco bourcieri, SCL., 1854, p. 115 (Quijos).

Eubucco hartlaubi, SCL., 1858a, p. 75 (Napo).

Capito bourcieri, B. & T., 1885, p. 108 (Machay); ALLEN, 1889, p. 76 (Rio Napo)

Zamora, 3 ♂, 2 ♀ (inc. type); 'Napo,' 1 ♂, 1 ♀; upper Rio Suno, 4 ♂, 2 ♀; lower Sumaco, 2 ♂, 1 ♀; Rio Sardinas, 1 ♂, 1 ♀; below Oyacachi, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone, eastern Ecuador.

The male resembles the male of *E. b. occidentalis* of western Colombia in the color of the underparts, but the red of the throat is more extended posteriorly and not so sharply defined from the orange breast. The female differs from the female of *occidentalis* in having the orange pectoral band sharply defined, not spreading on to the abdomen. In *æquatorialis*, of western Ecuador, the red breast is sharply defined from the yellowish abdomen. In *occidentalis* the red breast merges into the orange abdomen. Females of these two races are much alike in color, but in *æquatorialis* the orange of the head is brighter and more extended onto the nape, while in both sexes of *æquatorialis* the bill is larger.

(1521) **Eubucco bourcieri æquatorialis** (Salvad. & Festa)

Capito æquatorialis SALVAD. & FESTA, Boll. Mus. Tor., XV, 1900, No. 368, p. 22 (Intac, w. Ec.).

Eubucco bourcieri, SCL., 1859a, p. 146 (Pallatanga); 1860c, p. 95 (Nanegal); 1860e, p. 297 (Esmeraldas).

Capito bourcieri, B. & T., 1883, p. 573 (Chimbo); GOODF., 1902, p. 218 (Santo Domingo; Guanacillo)

Capito bourcieri æquatorialis, MEN., 1911, p. 23 (Gualea); L. & R., 1922, p. 64 (Rio Blanco, below Mindo; Santo Domingo).

[*Eubucco bourcieri*] *æquatorialis*, CHAPM., Bull. A. M. N. H., XXXIII, 1914, pp. 609, 610 (crit.).

Rio de Oro, 1 ♂; Gualea, 1 ♂, 3 ♀; Naranjo, 1 ♀.

RANGE.—Tropical and Subtropical Zones, western Ecuador.

Distinguished from all the other forms of this group by its large bill and the sharp definition of the red breast from the yellow abdomen in the male, while the female has no posterior blue margin to the black frontlet.

(1522) *Semnornis ramphastinus* (Jard.)

Tetragonops ramphastinus JARD., New Edinb. Phil. Journ., 1855, p. 404 ("Eastern Cordillera between Quito and the Mountain Cayambe"); 1856, p. 92, Andes east of Quito); ALLEN, 1889, p. 76 (Milligalli); GOODF., 1902, p. 218 (Gualea; Intac).

Semnornis rhamphastinus, MEN., 1911, p. 24 (Gualea; Pachigal); L. & R., 1922, p. 64 (Milligalli).

Gualea, 3 ♂, 4 ♀; Yamboya, 1 ♀.

RANGE.—Subtropical Zone; western and eastern Ecuador and western Colombia.

A very distinct species which finds its nearest relative in *Dicro-rhynchus frantzi* of the corresponding zone in Chiriqui and Costa Rica.

FAMILY RAMPHASTIDÆ. TOUCANS

(1525) *Ramphastos swainsoni* Gould

Ramphastos swainsonii GOULD, P. Z. S., 1833, p. 69 (mts. of Colombia); L. & R., 1922, p. 64 (below Mindo; Gualea).

Ramphastos tocard, SCL., 1860a, p. 70 (Pallatanga); HART., 1898, p. 498 (Parramba); S. & F., 1900, p. 22 (Valle di Mendez; San José; Rio Peripa); MEN., 1911, p. 24 (Santo Domingo).

Bucay (Rhoads).

Rio de Oro, 2 ♂.

RANGE.—Tropical Zone; Colombian-Pacific Fauna.

These specimens agree with others from Colombia. I have already commented on the characters of this form (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 328).

(1526) **Ramphastos ambiguus Swains.**

Ramphastos ambiguus SWAINS., Zoöl. Ills., III, 1823, pl. 168 (no locality; Chapman suggests Buena Vista, Col.).

Rhamphastos ambiguus, L. & R., 1922, p. 65 (below Baeza).

Sabanilla, 1 ♀; Zamora, 1 ♀; above Archidona, 1 ♂; below San José, 1 ♂, 1 ♀; lower Sumaco, 1 ♂; San José de Sumaco, 4 ♂; Baeza, 5 ♂, 1 ♀; below Oyacachi, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone: eastern Andes of Peru, Ecuador, and Colombia, and head of the Magdalena River, Colombia.

These specimens agree essentially with others from Colombia,¹ the characters of which I have previously described (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 329). It is singular that while, like *R. culminatus* and *R. cuvieri*, this form differs from *R. abbreviatus* only in size, the latter are found together, while in the present case they not only occupy different areas but different zones, *abbreviatus* being Tropical, *ambiguus* Subtropical in distribution. Although they are therefore representative of each other and, furthermore, differ only in size (one of the most variable factors), we have seen that in *cuvieri* and *culminatus* size alone is a specific character, separating two species which throughout a wide range are found together. In the absence, therefore, of intergrades there is no reason why *ambiguus* and *abbreviatus* should not be accorded the same rank we give *cuvieri* and *culminatus*.

(1526a) **Ramphastos abbreviatus Cab.**

Ramphastos abbreviatus CAB., J. f. O., 1862, p. 334 ("Kustengegend von New Granada, von Porto Cabello").

Rhamphastos ambiguus, SCL., 1859a, p. 146 (Pallatanga); 1860c, p. 95 (Nanegal); B. & T., 1883, p. 573 (Chimbo); HART., 1898, p. 498 (Paramba).

Rhamphastos ambiguus abbreviatus, L. & R., 1922, p. 65 (near Gualea).

Rio de Oro, 1 ♀, 1 ?.

RANGE.—Tropical Zone; Colombian-Pacific Fauna (north to the coast of Venezuela).

These specimens agree with a Colombian series. The status of this species is discussed above and also in the paper therein referred to.

(1529) **Ramphastos cuvieri Wagl.**

Ramphastos cuvieri WAGL., Syst. Av. Rhamphast., 1827, p. 5 ("Brasilia versus flumen Amazonum").

Rhamphastos cuvieri, S. & F., 1900, p. 23 (Gualaquiza; Valle del Rio Santiago); GOODF., 1902, p. 215 (Rio Napo); L. & R., 1922, p. 66 (Rio Curaray).

¹ In Ecuadorean specimens, the cutting edge of the maxilla is usually yellow for over its terminal 50 mm.; in Colombian specimens, for under its terminal 50 mm.

Rio Suno, 2 ♂, 1 ♀; below San José, 1 ♂, 1 ♀.

RANGE.—Tropical Zone; Bolivia to Colombia east to the Rio Roosevelt and headwaters of the Orinoco.

The following measurements of specimens in our collection show that from Colombia to Bolivia this species is reasonably constant in size but that two specimens from Mt. Duida, near the head of the Orinoco, are considerably smaller than other birds in the series. But even with this variation, which may possibly be considered as geographic and within the species, *cuvieri* and *culminatus* do not intergrade in size. We have, therefore, two forms which agree minutely in color and differ only in size, the ranges of which, at least from Colombia to Bolivia, coincide. Whether this difference in size is accompanied by differences of voice and habits I am unable to say, but for the systematist the fact remains that size, one of the most variable of characters and usually considered as, at the best, of subspecific value, may be a specific distinguishing mark since, throughout a wide area, two forms differing only in dimensions occur together without intergrading.

It should be noticed, however, that *cuvieri* and *culminatus* are separated not only by a difference in size but also in proportions. Thus, in the former the tail (in both sexes) averages 155 mm., the culmen 172 mm., while in the latter these measurements are respectively 146 and 132 mm. It appears, therefore, that these birds differ more in bill than in tail measurements, with the result that in *cuvieri* the bill is longer than the tail while in *culminatus* it is shorter.

Measurements of Ramphastos cuvieri

Locality		Wing mm.	Tail mm.	Culmen mm.
Barrigon, Col.	♂	254	160	175
Barrigon, Col.	♂	250	164	182
Barrigon, Col.	♂	258	165	188
Rio Suno, Ec.	♂	248	162	177
Rio Suno, Ec.	♂	242	152	176
Rio Suno, Ec.	"♀" [= ♂ ?]	242	158	184
Below San José, Ec.	♂	244	158	170
Rio Chimoré, Bol.	♂	238	153	183
Rio Chimoré, Bol.	♂	249	155	185
Todos Santos, Bol.	♂	242	158	170
Rio Roosevelt, Brazil	♂	242	155	195
Mt. Duida, Ven.	♂	225	147	157
Mt. Duida, Ven.	♂	232	148	165
Florencia, Col.	♀	233	150	150
Below San José, Ec.	♀	245	152	151
Rio Chimoré, Bol.	♀	224	145	148
Rio Chimoré, Bol.	♀	241	158	169

(1530) *Ramphastos culminatus* Gould

Ramphastos culminatus GOULD, P. Z. S., 1833, p. 70 ("Mexico"; Villavicencio, Col., suggested by Chapman); SCL., 1858*a*, p. 75 (Napo); 1858*b*, p. 460 (Gualaquiza); L. & R., 1922, p. 66 (Rio Napo).

Zamora, 1 ♀; Rio Suno, 1 ♂, 2 ♀; below San José, 1 ♂, 2 ♀.

RANGE.—Tropical Zone, from Bolivia to Colombia at the base of the Andes.

The relationships of this species are treated under *R. cuvieri*.

Measurements of Ramphastos culminatus

Locality		Wing mm.	Tail mm.	Culmen mm.
Villavicencio, Col.	♂	212	149	145
Below San José, Ec.	♂	196	145	110
Rio Suno, Ec.	♂	197	146	143
Rio Chimoré, Bol.	♂	196	143	125
Villavicencio, Col.	♀	202	148	120
Villavicencio, Col.	♀	202	148	118
Villavicencio, Col.	♀	211	145	135
Below San José, Ec.	♀	196	145	117
Below San José, Ec.	♀	196	142	111
Rio Suno, Ec.	♀	199	144	112
Rio Suno, Ec.	♀	192		119
Zamora, Ec.	♀	202	139	120
Rio Chimoré, Bol.	♀	200	154	130
Rio Chimoré, Bol.	♀	190	139	112

(1539) *Andigena laminirostris* Gould

Andigena laminirostris GOULD, P. Z. S., 1850, p. 93 (Quito, Ec.); SCL., 1859*a*, p. 146 (Pallatanga); 1860*c*, p. 95 (Nanegal); B. & T., 1884, p. 308 (Chaguarpata; Cayandede); S. & F., 1900, p. 24 (Guala; Nanegal); GOODF., 1902, p. 217 (Milligalli); MEN., 1911, p. 26 (Guala; "Napo"); L. & R., 1922, p. 66 (Milligalli).

Pagma Forest (Rhoads).

Guala, 3 ♂, 1 ♀.

RANGE.—Subtropical Zone, western Ecuador south to the Rio Chanchan.

While sharply distinguishable from other members of the genus by the ivory-white plates in the maxilla, this species resembles *hypoglaucus* in its bluish throat, while its orange sides are suggested in that species; in the absence of a nuchal collar, however, it agrees with *nigrirostris*.

(1541) *Andigena nigrirostris spilorrhynchus* Gould

Andigena spilorrhynchus GOULD, P. Z. S., 1858, p. 149 ("Forest of Baeza on the eastern side of the Cordillera, Ecuador"); GOODF., 1902, p. 217 (between Papallacta and Baeza); L. & R., 1922, p. 66 (Baeza).

Andigena nigrirostris, SCL., 1854, p. 115 (Quijos); 1858a, p. 75 (Napo).

Below Oyacachi, 2♂, 1♀; Baeza, 2♀; above Baeza, 1♂; below Baeza, 2♂, 1♀; upper Sumaco, 5♂, 2♀.

RANGE.—Subtropical Zone: the species, northeastern Ecuador and all three Andean ranges in Colombia; the race, northeastern Ecuador, and Central Andes, Colombia. Unknown from western Ecuador. (Fig. 12, p. 85.)

The mandible in these specimens is wholly black.

(1537a) *Andigena hypoglaucus lateralis* Chapm.

Andigena hypoglaucus lateralis CHAPM., Amer. Mus. Novit., No. 96, 1923, p. 5 (Rumicruz, Junin, e. Peru).

Andigena hypoglaucus, B. & T., 1885, p. 108 (San Rafael); S. & F., 1900, p. 24 (Pun); GOODF., 1902, p. 217 (Papallacta); MEN., 1911, p. 26 (forest of Gualaco); L. & R., 1922, p. 66 (Maspa; Baeza).

Taraguacocha, 1♀; above Baeza, 7♂, 4♀; upper Sumaco, 2♂, 1♀; above Zamora (9,000 ft.), 1♂, 1♀.

Subspecific Characters.—Similar to *Andigena hypoglaucus hypoglaucus* (Gould) of the Temperate Zone in Colombia, but sides more or less tinged with yellow, rump averaging paler yellow.

RANGE.—Humid Temperate Zone: the species, eastern Peru, eastern Ecuador, central and eastern Andes of Colombia; the race, Peru and Ecuador.

The characters on which this race is based are very slight, but the yellowish tint on the sides appears to be constant in Peruvian birds while the development of this mark as a prominent flank plume in *A. laminirostris* is an indication of its value as a differentiating feature. While Gould ascribed no type locality for his *hypoglaucus*, his description of its underparts as "uniform silvery bluish gray" permits us to attach his name to the Colombian form. Ecuadorean birds are intermediate, some resembling the Colombian, others the Peruvian race.

(1546) *Pteroglossus pluricinctus* Gould

Pteroglossus pluricinctus GOULD, P. Z. S., 1835, p. 157 ("Brasilia"); SCL., 1858a, p. 75 (Napo); GOODF., 1902, p. 216 (Rio Coca); L. & R., 1922, p. 66 (Rio Napo).

Rio Suno, 4♂, 7♀.

RANGE.—Tropical Zone; eastern Peru to eastern Colombia, east to Mt. Duida, upper Orinoco.

The abdominal band in specimens labeled female varies from almost wholly black to almost wholly red. The breast-band in both sexes varies in width from 22 to 12 mm. The chestnut auricular mark is more prominent in the males.

(1547) *Pteroglossus castanotis castanotis* Gould

Pteroglossus castanotis GOULD, P. Z. S., 1833, p. 119 ("Brasilia"); SCL., 1854, p. 115 (Quijos); GOODF., 1902, p. 216 (Archidona; Rio Coca).

Rio Suno, 1 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, Paraguay to eastern Colombia; the race, Bolivia to eastern Colombia.

(1551) *Pteroglossus erythropygius* Gould

Pteroglossus erythropygius GOULD, P. Z. S., 1843, p. 15 (Ecuador); SCL., 1860a, p. 71 (Pallatanga); 1860d, p. 286 (Babahoyo); B. & T., 1883, p. 573 (Chimbo); S. & F., 1900, p. 23 (Rio Peripa); GOODF., 1902, p. 216 (Santo Domingo); MEN., 1911, p. 25 (Santo Domingo); L. & R., 1922, p. 66 (Mindó; Gualea).

Esmeraldas, 1 ♂; Manaví, 1; Rio de Oro, 1 ♀; Naranjo, 1 ♂; Chimbo, 1 ♂.

RANGE.—Tropical Zone; western Ecuador from the Chanchan to Esmeraldas.

Although this species differs from *P. sanguineus* only in the color of the bill, specimens of *erythropygius* from Esmeraldas and of *sanguineus* from Barbacoas, Colombia, show no indication of intergradation. Furthermore, *sanguineus* is recorded by Hartert from northwestern Ecuador. While representative, the two birds, therefore, are apparently distinct.

(1552) *Pteroglossus sanguineus* Gould

Pteroglossus sanguineus GOULD, Mon. Ramph., 2d ed., 1854, pl. 21 (no locality); HART., 1898, p. 498 (Cachaví; Paramba).

RANGE.—Tropical Zone; northwestern Ecuador and western Colombia.

We have no Ecuadorean specimens. Hartert emphasizes the fact that his specimens from Cachaví and Paramba are *sanguineus*, not *erythropygius*.

(1556) *Pteroglossus flavirostris flavirostris* Fraser

Pteroglossus flavirostris FRASER, P. Z. S., 1840, p. 61 ("Rio Janeiro"; Berlepsch and Hartert substitute Rio Solimões, Brazil); SCL., 1854, p. 115 (Quijos); 1858a, p. 75 (Napo); GOODF., 1902, p. 217 (Rio Coca); L. & R., 1922, p. 66 (road to Napo, 4,000 ft.).

Rio Suno, 4 ♂, 3 ♀; below San José, 2 ♂, 1 ♀.

RANGE.—Tropical Zone; eastern Ecuador to the lower Orinoco (*P. f. mariæ* is said to range from eastern Peru to western Brazil).

Specimens from Mt. Duida and the lower Orinoco (La Union) agree with those from eastern Ecuador. Three from Colombia have a narrow olive-green band at the junction of the brown throat and black breast-band. The crown in the male is brownish black.

(1559) *Pteroglossus humboldti* Wagl.

Pteroglossus humboldti WAGL., Syst. Av. 1827, *Pteroglossus*, sp. 4 ("Brasilia"); SCL., Cat. Bds. B. M., XIX, 1891, p. 146 (Andoas—Buckley).

RANGE.—Tropical Zone; upper Amazonia.

We have southeastern Colombian, but no Ecuadorean specimens.

(1567) *Selenidera reinwardti* (Wagl.)

Pteroglossus reinwardti WAGL., Syst. Av. 1827, *Pteroglossus*, sp. 11 ("Brasilia").

Selenidera reinwardti, SCL., 1858a, p. 75 (Napo); L. & R., 1922, p. 66 (road to Napo, 3,000 ft.); S. & F., 1900, p. 24 (Valle del Rio Zamora).

Rio Suno, 2♂, 3♀; below San José, 2♂, 2♀.

RANGE.—Tropical Zone; upper Amazonia; Peru to Colombia.

The genus has not been recorded from western Ecuador, but is represented in northwestern Colombia and Central America by *S. spectabilis*, in which the female differs from the male only in the seal-brown crown. In southeastern Peru, *reinwardti* appears to be replaced by *langsdorffi*.

(1574) *Aulacorhynchus derbianus* (Gould)

Aulacorhynchus derbianus GOULD, P. Z. S., 1835, p. 49 ("Cordillerian Andes"); SCL., Cat. Bds. B. M., XIX, 1891, p. 155 (Jima; Archidona).

Zamora, 1♂, 1♀; San José de Sumaco, 1♂; lower Sumaco, 2♂.

RANGE.—Subtropical Zone; eastern Ecuador and eastern Peru.

(1576) *Aulacorhynchus albivitta albivitta* (Boiss.)

Pteroglossus albivitta BOISS., Rev. Zool., 1840, p. 70 (Bogotá).

Aulacorhynchus albivittatus, SCL., 1858a, p. 75 (Napo); GOODF., 1902, p. 217 (Baeza); L. & R., 1922, p. 66 (Baeza).

Baeza, 5♂, 3♀; below Oyacachi, 2♂, 1♀; upper Sumaco, 5♂, 1♀.

RANGE.—Subtropical Zone: the species, western Venezuela, Colombia, and eastern Ecuador; the race, eastern Ecuador, East Andes and eastern slope of Central Andes, Colombia.

Our Ecuadorean specimens agree with a Colombian series.

(1577a) *Aulacorhynchus hæmatopygus sex-notatus* (Gould)

Aulacorhamphus sex-notatus GOULD, P. Z. S., 1868, p. 219 ("Peru ?").

Aulacorhamphus hæmatopygius, SCL., 1859a, p. 146 (Pallatanga); B. & T., 1884, p. 308 (Pedregal; Cayandeled); S. & F., 1900, p. 24 (Rio Peripa); GOODF., 1902, p. 217 (West Andes, 3,000 to 4,000 ft.); MEN., 1911, p. 27 (Gualca; San Nicolas); L. & R., 1922, p. 66 (Gualca; Mindo).

Aulacorhamphus hæmatopygus, HART., 1898, p. 499 (Paramba).

Gualca, 4♂, 1♀; Mindo, 2♂; Chimbo, 1♂; Pallatanga, 1♂, 1♀; El Chiral, 2♂, 2♀; above Zaruma, 5♂, 3♀; Punta Santa Ana, 1♀; Salvias, 2♂, 1♀; Las Piñas, 2♀; Alamor, 2♂, 4♀.

RANGE.—Subtropical Zone: the species, Colombia and western Ecuador; the race, western Ecuador and West Andes of Colombia.

Gould's type of *sex-notatus*, which I have examined in the British Museum, agrees with Ecuadorean birds and differs from eastern Colombian specimens in having a smaller bill and no blue behind the eye. The blue on the underparts and at the base of the mandible is also less pronounced in Ecuadorean birds, and in specimens from southwestern Ecuador the latter mark is usually absent. Western Colombian birds, while intermediate, are, on the whole, nearer the Ecuadorean than the eastern Colombian race.

(1579) *Aulacorhynchus cyanolæmus* (Gould)

Aulacorhamphus cyanolæmus GOULD, P. Z. S., 1866, p. 24 (Loxa, Ec.).

Mácas region, 1.

RANGE.—Subtropical Zone, northeastern Peru and southeastern Ecuador.

Apparently a representative of *A. cæruleigularis* of eastern Panama, Chiriqui, and Costa Rica, and differing from *A. c. cognatus* of eastern Panama only in the greater extent of black on the maxilla and the greener crown.

ORDER PICIFORMES

FAMILY GALBULIDÆ. JACAMARS

(1588) *Galbula melanogenia* Scl.

Galbula melanogenia SCL., Contrib. to Ornith., 1852, p. 61, pl. 90 (Vera Paz, Guatemala); B. & T., 1883, p. 572 (Chimbo); HART., 1898, p. 498 (Cachaví); S. & F., 1900, p. 19 (Rio Peripa); GOODF., 1902, p. 212 (Santo Domingo); MEN., 1911, p. 27 (Santo Domingo).

Esmeraldas, 4♂, 4♀; Naranjo, 1♀; Bucay, 1♂.

RANGE.—Tropical Zone; western Ecuador to southern Mexico. Apparently representing the *Galbula ruficauda-rufoviridis* group.

Ecuadorean and Colombian specimens agree, and average somewhat smaller and with the rufous areas darker than in examples from Mexico and Nicaragua.

(1589) *Galbula tombacea* Spix

Galbula tombacea SPIX, Av. Bras., I, 1824, p. 55, pl. lviii ("In sylvis flum. Amazonum").

'Ecuador' (?), 1.

RANGE.—Tropical Zone; upper Amazon to northern Colombia, east of the Andes.

We have a specimen labeled "Ecuador" with a query. In default of a more definite record I venture to include this species on the basis of its known range.

(1591) *Galbula pastazæ* Tacz. & Berl.

Galbula pastazæ TACZ. & BERL., P. Z. S., 1885, p. 107 (Mapoto; Machay, Ec.); S. & F., 1900, p. 20 (San José).

Zamora, 4♂, 2♀; Macas region, 1♂, 1♀; Pitaloma (3,500–4,000 ft.), near Macas.

RANGE.—Subtropical Zone, eastern Ecuador.

Three specimens, two of which are labeled female, while the third is not sexed, have a large throat-patch the color of the abdomen. On the other hand, a bird with blackish green throat is labeled female. Taczanowski and Berlepsch considered the brown-throated birds to be young, but whether they are young or adult female (and I believe them to be the latter), they show that this species has nothing to do with *tombacea*. The latter is represented in our collections by fourteen Colombian and one Ecuadorean (?) specimens. All of these have the entire anterior part of the crown sooty brown with a whitish chin, while the females (five) differ from the males only in having the abdomen paler. In default of Amazonian specimens I cannot say whether these Colombian birds are typical.

If I am correct in assigning this species to the Subtropical Zone it is, I believe, the only species of its family found above the tropics.

(1593) *Galbula albirostris chalconcephala* Dev.

Galbula chalconcephala DEV., Rev. et Mag. de Zoöl., 1849, p. 55 (Sarayacu, Ec.).
Galbula albirostris chalconcephala, ALLEN, 1889, p. 75 (Napo).

Rio Suno, 3♂, 2♀.

RANGE.—Tropical Zone: the species, Amazonia; the race, upper Amazonia.

A strongly marked form, perhaps specifically distinct.

(1596) *Galbula chalcothorax* Scl.

Galbula chalcothorax SCL., P. Z. S., 1854, p. 110 (Quijos, Ec.); ALLEN, 1889, p. 75 (Rio Napo); GOODF., 1902, p. 213 (near the Rio Coca).

Galbula leucogaster, SCL., 1858a, p. 61 (Napo).

Rio Suno, 9♂, 4♀.

RANGE.—Tropical Zone; upper Amazonia.

(1598a) *Brachygalba fulviventris caquetæ* Chapm.

Brachygalba fulviventris caquetæ CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 338 (La Morelia, Col.).

Brachygalba fulviventris, SCL., Cat. Bds. B. M. XIX, 1891, p. 172 (Napo; Sarayacu—Buckley).

RANGE.—Tropical Zone: the species, eastern Colombia and eastern Ecuador; the race, southeastern Colombia and eastern Ecuador.

We have no Ecuadorean specimens but it is probable that those recorded by Selater from that country are referable to the southeast Colombian race.

(1604) *Galbalcyrhynchus leucotis* Des Murs

Galbalcyrhynchus leucotis DES MURS, Rev. Zool., 1845, p. 207 ("Bogotá"); SCL. Cat. Bds. B. M., XIX, 1891, p. 175 (Rio Cotapaza—Buckley).

RANGE.—Upper Amazon; southeastern Colombia to eastern Peru.

We have specimens from southeastern Colombia but none from Ecuador.

(1606) *Jacamerops aurea aurea* (P. L. S. Müll.)

Alcedo aurea P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 94 (Guiana).

Jacamerops grandis, S. & F., 1900, p. 19 (Valle del Rio Santiago; Gualaquiza); GOODF., 1902, p. 213 (near Rio Coca).

RANGE.—Tropical Zone: the species, Cayenne to Ecuador and Costa Rica; the race, Cayenne to Ecuador.

I have seen no Ecuadorean specimens.

FAMILY BUCCONIDÆ. PUFFBIRDS

(1608) *Bucco capensis* Linn.

Bucco capensis LINN., Syst. Nat., I, 1766, p. 168 (Guiana).

Bucco collaris, SCL., 1854, p. 110 (Quijos); SCL., Cat. Bds. B. M., XIX, 1891, p. 181 (Sarayacu—Buckley).

Rio Suno, 2 ♂, 1 ♀.

RANGE.—Tropical Zone; Amazonia.

Ecuadorean specimens seem larger than those from the lower Orinocan region, but I have not enough material to determine whether the difference is constant.

(1611) **Notharchus hyperrhynchus hyperrhynchus** (Scl.)

Bucco hyperrhynchus SCL., P. Z. S., 1855, p. 193, pl. cv. (upper Amazonia); 1858a, p. 60 (Napo).

Bucco macrorhynchus, SCL., 1854, p. 110 (Quijos).

Bucco leucocrissus SCL., P. Z. S., 1860, p. 284 (Napo, Ec.).

Bucco dysoni, S. & F., 1900, p. 20 (Vinces).

Notharchus hyperrhynchus leucocrissus, CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 340 (Chone).

Chone, 1 ♂; Rio Napo, 1.

RANGE.—The species, Tropical Zone; Amazonia to Honduras.

Mr. Todd agrees¹ with me² that the western Ecuadorean bird is separable from the Central American *dysoni*, but we both lack material to determine satisfactorily the ranges of the forms found south of Nicaragua. Mr. Todd, for example, finds that the Santa Marta form closely resembles *dysoni*, though between it and the home of *dysoni* lies a large area inhabited by the bird I here call *hyperrhynchus*. Again, I find that specimens from eastern and western Ecuador are apparently not separable and, furthermore, that others from Puerto Velho on the Madeira agree with them. To these birds from the upper Amazon, western as well as eastern Ecuador, Colombia (except Santa Marta), Panama, and Costa Rica the name *hyperrhynchus hyperrhynchus* should evidently be applied. In the 'Catalogue of Birds of the British Museum' the "types of *B. leucocrissus*" are listed from "Babahoyo, Ecuador," but in his original description under Bonaparte's Ms. name, Sclater makes no mention of Babahoyo, but says he has two 'Napo' specimens. These he compares with the narrow-fronted *macrorhynchus* of the Guianas from which they obviously differ, but he does not tell us how they may be separated from his own *hyperrhynchus*. With a wide-ranging species which varies so little as the one here under consideration, we should not expect to find, nor do I find, racial differences between 'Napo' and upper Amazonian specimens, and it seems clear that *leucocrissus* Scl. is a pure synonym of *hyperrhynchus* Scl.

¹ Ann. Carn. Mus., XIV, 1922, p. 229.

² Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 340.

To add to the nomenclatural complication, without in any way affecting the status of the species, Selater, in 1862 (Cat. Am. Bds., p. 269), redescribed his Napo specimens as *Bucco napensis*, again comparing them only with *macrorhynchus*, and entered as the "types" of *leucocrissus* two specimens from Babahoyo, Ecuador, although, as we have seen, he had previously based this name on two Napo birds!

Since, however, but one form appears to inhabit Ecuador and upper Amazonia, we may ignore both the names *leucocrissus* and *napensis* and adopt the one here given for the Ecuadorean bird.

We have still to consider the form with a broad white forehead and large bill, of the lower Amazon. Of this I have a specimen from Pará in which the culmen measures 48.5 mm., as compared with 44 to 45 mm. in Porto Velho and Ecuadorean birds. This large-billed bird is really the *Bucco hyperrhynchus* of the British Museum Catalogue, but apparently not *hyperrhynchus* Scl. of the upper Amazon. Since I do not know the range of this form, I am unable to say whether any of the existing names are applicable to it. A specimen from Astillero in southeastern Peru has the bill quite as large but the forehead not so broadly white as in the Pará bird.

(1613) *Notharchus pectoralis* (Gray)

Bucco pectoralis GRAY, Gen. Bds., I, 1846, p. 74, pl. xxvi (S. Am.); BRAB. & CHUBB, Bds. S. Am., 1912, p. 174 (n. Ecuador).

RANGE.—Tropical Zone; eastern Panama to northwestern Ecuador.

I know of no record of this species from Ecuador other than that of Brabourne & Chubb, as quoted above. We have, however, seven specimens from Barbacoas, southwestern Colombia.

(1616) *Notharchus tectus picatus* (Scl.)

Bucco picatus SCL., P. Z. S., 1855, p. 194 (Chamicuros); Cat. Bds. B. M., XIX, 1891, p. 186 (Sarayacu—Buckley).

RANGE.—Tropical Zone; eastern Ecuador and eastern Peru.

I have examined the type of this species, which appears to be a race of *tectus*.

(1617) *Notharchus tectus subtectus* (Scl.)

Bucco subtectus SCL., P. Z. S., 1860, p. 296 (Esmeraldas, Ec.).

RANGE.—Tropical Zone: the species, Amazonia to Panama; the race, Colombian-Pacific Fauna from northwestern Ecuador to central Panama.

We have specimens from Barbacoas, southwestern Colombia, but none from Ecuador.

(1618) **Argicus macrodactylus** (Spix)

Cyphos macrodactylus SPIX, Av. Bras., I, 1824, p. 51, pl. xxxix, fig. 2 ("In sylvis flum. Amazonum"; Berl. & Hart. substitute Fonteboa).

Bucco macrodactylus, SCL., 1858a, p. 60 (Napo); ALLEN, 1889, p. 76 (Napo); GOODF., 1902, p. 213 (Archidona; Rio Coca).

'Napo,' 2; Rio Suno, 1 ♂, 1 ♀.

RANGE.—Tropical Zone; eastern Peru to the lower Orinoco.

I cannot separate Peruvian from lower Orinocan specimens (*A. m. caurensis* Cherrie).

(1623) **Nystactes tamatia pulmentum** (Scl.)

Bucco pulmentum SCL., P. Z. S., 1855, p. 194, pl. cvi (Chamicuros); SCL., Cat. Bds. B. M. XIX, 1891, p. 189 (Sarayacu—Buckley).

'Napo,' 1.

RANGE.—Tropical Zone: the species, Amazonia; the race, eastern Peru and eastern Ecuador.

Our single trade skin seems very much like Santarem specimens of "*hypnalea*" Cab.

(1628) **Nystalus striolatus** (Pelz.)

Bucco striolatus PELZ., Sitz. Ak. Wien, XX, p. 509 (Engenho do Cap Gama); SCL., Cat. Bds. B. M., XIX, 1891, p. 192 (Sarayacu—Buckley).

RANGE.—Tropical Zone; Bolivia to northeastern Brazil; eastern Ecuador.

We have no specimens of this species from Ecuador.

(1629) **Nystalus radiatus** (Scl.)

Bucco radiatus SCL., P. Z. S., 1853, p. 122, pl. 50 ("Colombia" = Magdalena Valley); B. & T., 1883, p. 572 (Chimbo); GOODF., 1902, p. 213 (Santo Domingo); MEN., 1911, p. 28 (Santo Domingo).

RANGE.—Tropical Zone; western Ecuador to western Panama.

We have no Ecuadorean specimens. I have already given my reasons for recognizing only one form of this species (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 341).

(1631) **Malacoptila fusca** (Gmel.)

Bucco fuscus GMEL., Syst. Nat., I, 1788, p. 408 (Cayenne).

Malacoptila fusca, SCL., 1854, p. 110 (Quijos); GOODF., 1902, p. 213 (Archidona).

Malacoptila unitorques, SCL., 1858a, p. 60 (Napo).

Rio Suno, 1 ♂, 1 ♀; below San José, 1 ♀; 'Napo,' 1.

RANGE.—Tropical Zone; Amazonia.

The Napo bird, an old skin, is much paler than the other two, both collected in 1923, but it agrees with two old Guiana birds, and I assume, therefore, that the differences are due to post-mortem fading.

(1637) ***Malacoptila panamensis poliopis* Scl.**

Malacoptila poliopis SCL., P. Z. S., 1862, p. 86, pl. viii (Esmeraldas, Ec.).

M[alacoptila] æquatorialis CAB. & HEINE, Mus. Heine, IV, No. 1, 1863, p. 134 (Esmeraldas, Ec.).

Malacoptila panamensis, SCL., 1858e, p. 297 (Esmeraldas); TACZ., 1877, p. 333 (Palma); S. & F., 1900, p. 20 (Rio Peripa).

Malacoptila panamensis poliopis, B. & T., 1883, p. 572 (Chimbo); HART., 1898, p. 498 (Cachavi; Chimbo); MEN., 1911, p. 28 (Santo Domingo).

Esmeraldas, 6 ♂, 4 ♀; Naranjo, 2 ♂, 1 ♀; Chimbo, 1 ♂; La Chonta, 1 ♂; Portovel, 1 ♂.

RANGE.—Tropical Zone: the species, western Ecuador to Guatemala; the race, southwestern Ecuador north to San José, western Colombia.

The characters and distribution of this race are given in my paper on Colombian birds (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 342). This species is evidently the western representative of *M. mystacalis* of Venezuela.

(1638) ***Malacoptila fulvicularis* Scl.**

Malacoptila fulvicularis SCL., P. Z. S., 1853, p. 123 (Bolivia); B. & T., 1885, p. 108 (Mapoto).

Macas region, 1. Peru: San Ignacio, n. e. of Huancabamba, 1 ♂, 1 ♀; Machu Picchu, 1 ♀; Santo Domingo, 1 ♂, 5 ♀. Bolivia; Vermejo, 2 ♂.

RANGE.—Subtropical Zone; Bolivia to eastern Ecuador.

A distinct species suggesting *M. torquata* above and *M. panamensis* below. The specimens above listed do not support the claims to distinctness of *M. f. melanopogon* Berl. & Stolz. (P. Z. S., 1902, p. 37).

(1641) ***Micromonacha lanceolata* (Dev.)**

Bucco lanceolata DEV., Rev. et Mag. de Zool., 1849, p. 56 (Pampa del Sacramento, upper Amazons).

Micromonacha lanceolata, S. & F., 1900, p. 20 (Gualaquiza); SCL., Cat. Bds. B. M., XIX, 1891, p. 199 (Sarayacu—Buckley).

Zamora, 1 ♂, 1 ♀.

RANGE.—Tropical Zone; upper Amazonia; southwestern Colombia.

I have already commented on the distribution of this species, the range of which appears to be divided by the Andes. Although unrecorded from western Ecuador, its presence in southwestern Colombia indicates that it occurs there. A closely allied form has recently been described from Costa Rica.

(1647) ***Nonnula brunnea* Scl.**

Nonnula brunnea SCL., Ibis, 1881, p. 600 (Sarayacu).

Nonnula frontalis, SCL., 1858a, p. 60 (Napo).

Rio Suno, 1 ♂, 6 ♀; below San José, 1 ♀.

RANGE.—Tropical Zone; Peru to Colombia; represented in Colombia west of the Andes and in Panama by the closely allied *N. frontalis*.

(1648) ***Hapaloptila castanea* (Verr.)**

Malacoptila castanea VERR., Rev. et Mag. de Zoöl., 1866, p. 355, pl. 19 (Santa Fé de Bogotá); GOODF., 1902, p. 213 (lower w. Pichincha).

Hapaloptila castanea, S. & F., 1900, p. 20 (Gualea); L. & R., 1922, p. 66 (below Nono; Mindo).

Gualea, 1 ♂.

RANGE.—Subtropical Zone; western Ecuador and western Colombia.

A very distinct species without known near relatives.

(1650) ***Monasa flavirostris* Strickl.**

Monasa flavirostris STRICKL., Contrib. to Orn., 1850, p. 47, pl. 48 (Peru); GOODF., 1902, p. 213 (Rio Coca); SCL., Cat. Bds. B. M., XIX, 1891, p. 204 (Sarayacu—Buckley).

RANGE.—Tropical Zone; eastern Peru to eastern Colombia.

We have only Colombian specimens.

(1653) ***Monasa morphœus peruana* Scl.**

Monasa peruana SCL., P. Z. S., 1855, p. 194 (Chamicuros, e. Peru); 1858a, p. 60 (Napo); S. & F., 1900, p. 20 (Gualaquiza; Valle del Rio Santiago); GOODF., 1902, p. 214 (Rio Coca).

Rio Suno, 6 ♂, 8 ♀.

RANGE.—Tropical Zone: the species, southeastern Brazil to eastern Colombia; the race, eastern Peru to eastern Colombia.

These specimens agree with a single example from Pebas, Peru.

(1656) *Monasa nigrifrons* (Spix)

Bucco nigrifrons SPIX, Av. Bras., I, 1824, p. 53, pl. xli, fig. 2 ("In sylvis flum. Solimoëns").

Monasa nigrifrons, SCL., 1858a, p. 60 (Napo); GOODF., 1902, p. 214 (Rio Coca).

RANGE.—Amazonia to southern Brazil.

We have no Ecuadorean specimens.

(1657) *Chelidoptera tenebrosa* (Pall.)

Cuculus tenebrosa PALL., Neue Nord. Beytr., III, 1782, p. 2 (Surinam).

Chelidoptera tenebrosa, S. & F., 1900, p. 21 (Valle de Zamora).

RANGE.—Southern Brazil to Venezuela, Colombia, and the Guianas.

Known from Ecuador only on the authority of Salvadori and Festa.

FAMILY PICIDÆ. WOODPECKERS, PICULETS

(1666) *Hypoxanthus rivolii brevirostris* Tacz.

Hypoxanthus brevirostris TACZ., P. Z. S., 1874, p. 546 (Higos, cen. Peru); S. & F., 1900, p. 14 (Pun; El Troje; La Concepcion; Chaupi; Pululagua).

Colaptes elegans, SCL., 1858c, p. 555 (Matos; Titiacun); 1860b, p. 81 (Lloa); 1860c, p. 95 (Calacali).

Hypoxanthus æquatorialis DuBois, Bull. Acad. R. Belge, 1879, p. 823 (Ecuador).

Hypoxanthus rivolii brevirostris, B. & T., 1884, p. 387 (Cayandeled); 1885, p. 107 (San Rafael); MEN., 1911, p. 29 (Lanlin, road to Nanegal); L. & R., 1922, p. 66 (Nono; Cumbaya; Guápulo; above La Carolina).

Hypoxanthus rivolii, GOODF., 1902, p. 210 (Guápulo).

Pagma Forest (Rhoads).

Road to Guallea, 2♂, 2♀; Verdecocha, 1♀; El Chiral, 1♂, 1♀; Salvias, 1♀; Taraguacocha, 1♂, 1♀; Loja, 1♀, 1♂ juv.; Sabanilla, 2♂ juv.; above Baeza, 3♂, 2♀; Baeza, 1♂, 3♀.

RANGE.—Humid Temperate down to the upper part of the Subtropical Zone: the species, Peru to Venezuela; the race, Peru and Ecuador.

Ecuadorean specimens average slightly larger than a series from eastern Peru, but are nearer to it than to the large form at the northern end of the Central Andes. I find no intergrades between *revolii* and this form, though the nature of their differences suggests their intergradation; but the recurrence of the *brevirostris* type of coloration in Venezuela implies either complete intergradation of *revolii* with *brevirostris* or the segregation of a race of the latter in the Mérida region. (This race I have since described as *H. r. meridæ*, Amer. Mus. Novit., No. 96, 1923, p. 6.)

(1673) **Chloronerpes chrysochlorus capistratus** (Malh.)

Chloropicus capistratus MALH., Monogr. Picidæ, II, 1862, p. 140, pl. 83 ("Bresil").

Chloronerpes capistratus, HARG., Cat. Bds. B. M., XVIII, 1890, p. 74 (Sarayacu).

RANGE.—Tropical Zone: the species, Paraguay to Panama; the race, eastern Ecuador to British Guiana.

We have no specimens of this species.

(1675) **Chloronerpes leucolæmus** (Malh.)

Picus leucolæmus MALH., Mém. Soc. Roy. Liège, 1845, p. 68 ("Bresil").

Chloronerpes leucolæmus, S. & F., 1900, p. 14 (Valle del Rio Santiago).

Below San José, 2♂, 2♀.

RANGE.—Tropical Zone; Bolivia, western Brazil to eastern Colombia.

We have also Colombian and Bolivian specimens. In the latter the breast-stripes are linear rather than guttate, but the material is not conclusive.

(1676) **Chloronerpes litæ** Roths.

Chloronerpes litæ ROTHS., Bull. B. O. C., XI, 1901, p. 70 (Lita, 3,000 ft., n. Ec.).

RANGE.—Tropical Zone; northwestern Ecuador and western Colombia.

We have only a specimen from Baudo, Col. Evidently represents *C. leucolæmus*.

(1677) **Chloronerpes flavigula flavigula** (Bodd.).

Picus flavigula BODD., Tabl. Pl. Enl., 1783, p. 49 (Cayenne).

Chloronerpes flavigula, HARG., Cat. Bds. B. M., XVIII, 1890, p. 77 (Sarayacu).

RANGE.—Tropical Zone: the species, western Brazil to Cayenne; the race, eastern Ecuador to Cayenne.

We have no Ecuadorean specimens.

(1680) **Chloronerpes rubiginosus rubripileus** Salvad. & Festa

Chloronerpes rubripileus SALVAD. & FESTA, Boll. Mus. Tor., XV, 1900, No. 368, p. 14 (Rio Peripa; Vinces).

Chloronerpes canipileus, TACZ., 1877, p. 327 (Tumbez; Lechugal); B. & T., 1883, p. 571 (Chimbo).

Chloronerpes rubiginosus rubripileus, L. & R., 1922, p. 67 (near Mindo; road to Gualea).

Esmeraldas, 2♂; Chone, 4♀; Manta, 1♀; Rio de Oro, 3♂; Machachilla, 1♂; Daule, 4♂; Duran, 2♀; La Chonta, 1♂; Santa Rosa, 2♀; Portovelo, 1♂; Zaruma, 2♂, 4♀; Punta Santa Ana, 1♀; Guainche, 1♂.

RANGE.—Tropical Zone: the species, northern Argentina, southern Mexico; the race, western Ecuador and northwestern Peru.

Males from southwestern Ecuador and northwestern Peru average paler and the throat is usually unspotted, while in the southern females the throat and malar stripe are less spotted. These differences, however, are bridged by the wide range of variation exhibited by our large series (which includes eighteen Peruvian birds), and should not, in my opinion be recognized. It seems apparent, however, that a race with an unspotted throat is developing in this region, as an offshoot from *C. r. gularis* of the Subtropical Zone of western and central Colombia, which *rubripileus* resembles in its red-crowned male.

(1687a) *Chloronerpes rubiginosus buenavistæ* Chapm.

Chloronerpes rubiginosus buenavistæ CHAPM., Bull. A. M. N. H., XXXIV, 1915, p. 386 (Buena Vista, above Villavicencio, East Andes, Col.)

Subspecific Characters.—Similar to *C. r. meridensis*, but upperparts and olive bars of underparts darker, cheeks grayer, bill longer; similar to *C. r. canipileus* (d'Orb.) but with much more red and consequently darker, less golden in color. Similar to *C. r. alleni* Bangs but olive bars of underparts wider and yellowish ones narrower; tail always (?) unbarred; posterior underparts, especially lower tail-coverts, less distinctly barred.

Sabanilla, 2♀.

RANGE.—Subtropical and Tropical (?) Zones; eastern Colombia and eastern Ecuador.

These two birds have shorter bills but are otherwise very near typical females of *buenavistæ*.

(1697) *Chrysoptilus punctigula guttatus* (Spix)

Picus guttatus SPIX, Av. Bras., I, 1824, p. 61, pl. liii, fig. 1 ("in sylvis flum. Amazonum").

Chrysoptilus guttatus, S. & F., 1900, p. 15 (Valle del Rio Zamora).

RANGE.—Tropical Zone: the species, South America north of Amazonia; the race, upper Amazonia and eastern Ecuador.

Recorded from Ecuador only by Salvadori and Festa.

(1703) *Tripsurus cruentatus* (Bodd.)

Picus cruentatus BODD., Tabl. Pl. Enl., 1783, p. 43 (Cayenne).

Melanerpes hirundinacea, SCL., 1858b, p. 460 (Gualaquiza).

Melanerpes cruentatus, GOODF., 1902, p. 209 (Rio Suno, upper Napo); MEN., 1911, p. 29 (upper Napo).

Below San José, 4♂, 4♀; Rio Suno, 1♂, 2♀.

RANGE.—Tropical Zone; Amazonia.

I find no racial variations in our large series of this species from the western portion of its range.

(1708) *Tripsurus pucherani pucherani* (Malh.)

Zebrapicus pucherani MALH., Rev. et Mag. de Zoöl., 1849, p. 542 ("Tobago" = Colombia).

Centurus pucherani, SCL., 1860d, p. 286 (Babahoyo); 1860e, p. 297 (Esmeraldas).

Melanerpes pucherani, B. & T., 1883, p. 571 (Yaguachi); 1885, p. 107 (Yaguachi); MEN., 1911, p. 29 (Santo Domingo); L. & R., 1922, p. 67 (Rio Blanco below Mindo).

Melanerpes pulcher GOODF., 1902, p. 210 (Santo Domingo; near Guala).

Esmeraldas, 3♂, 3♀; Chone, 1♂; Rio de Oro, 1♂, 2♀; Duran, 1♀; Bucay, 1♀; Santa Rosa, 1♂, 1♀.

RANGE.—Tropical Zone: the species, western Ecuador to southern Mexico; the race, western Ecuador to Honduras.

(1715) *Veniliornis oleaginus fumigatus* (Lafr. & d'Orb.)

Picus fumigatus LAFR. & D'ORB., Voy. Am. Merid., Ois., 1839, p. 380, pl. lxxv, fig. 1 (Chiquitos, Bol.).

? *Chloronerpes fumigatus*, B. & T., 1885, p. 106 (Machay; Mapoto).

El Chiral, 1♂; Zaruma, 2♂; San Bartolo, 1♂; Alamor, 1♂, 1♀; lower Sumaco, 1♂. Peru: Palambra, 1♂, 1♀; El Tambo, 1♀; Huancabamba, 1♀; Chaupe, 1♀; San Ignacio, 1♂.

RANGE.—Subtropical Zone: the species, Bolivia to Mexico and northeastern Venezuela; the race, Bolivia to eastern Colombia and southwestern Ecuador (?).

The specimens above listed agree with eastern Colombian birds which I have provisionally referred to *fumigatus*. All resemble our only Bolivian specimen, a Yungas male; but a pair from Utcuyacu above La Merced, eastern Peru, more nearly resemble *aureus*, and without a sufficiently large series adequately to represent true *fumigatus*, I can reach no satisfactory conclusion in regard to these Ecuadorean and Colombian birds I have called *fumigatus*. It seems, however, certain that there are two forms in western Ecuador, as above outlined. I place provisionally here a specimen from Sumaco, eastern Ecuador, which is nearly as dark as true *oleaginus*.

(1715a) **Veniliornis oleaginus aureus** *Chapm.*

Veniliornis oleaginus aureus CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 612 (La Sierra, Col.); L. & R., 1922, p. 67 (near Nanegal).

Chloronerpes fumigatus, SCL., 1859a, p. 146 (Pallatanga); B. & T., 1884, p. 307 (Cayandede; El Placer); GOODF., 1902, p. 209 (w. Pichincha).

Eleopicus fumigatus, S. & F., 1900, p. 15 (Gualea).

Junction Chanchan and Chiguancay (Rhoads).

Above Naranjo, 1 ♂; Rios Coco and Chimbo, 1 ♂; Pallatanga, 1 ♂.

RANGE.—Chiefly Subtropical Zone; western Colombia and western Ecuador south to the Chanchan.

These three specimens are typical of *aureus*.

(1716) **Veniliornis callonotus callonotus** (*Waterh.*)

Picus callonotus WATERH., P. Z. S., 1840, p. 182 (Guayaquil).

Chloronerpes callonotus, SCL., 1860d, p. 286 (Babahoyo); 1860e, p. 297 (Esmeraldas); LAW., 1869, p. 238 (Puna Is.); B. & T., 1883, p. 570 (Yaguachi; Chimbo); 1885, p. 106 (Yaguachi).

Dendrobates callonotus, HART., 1898, p. 497 (Chimbo).

Eleopicus callonotus, S. & F., 1900, p. 15 (Vinces; Balzar).

Veniliornis callonotus, L. & R., 1922, p. 67 (Rio Blanco, below Mindo).

Bucay (Rhoads).

Esmeraldas, 3 ♂, 6 ♀; Chone, 1 ♀; Rio de Oro, 1 ♂; Manta, 2 ♂; Daule, 1 ♂, 2 ♀; Chongoncito, 2 ♂, 2 ♀; Guayaquil, 3 ♂, 1 ♀; Duran, 2 ♂, Naranjo, 1 ♂; Chimbo, 1 ♀; Puna Is., 1 ♂, 3 ♀.

RANGE.—Tropical Zone; equatorial Arid Fauna from Puna Is. to Esmeraldas.

• Our large series of this species admirably illustrates its geographic variations. Typical *callonotus major* differs from typical *callonotus callonotus* in having the entire underparts, from the chin to the end of the lower tail-coverts, narrowly and evenly barred with blackish, the auriculars darker and separated from the hindhead by a white, black-barred postocular stripe reaching to the nape and connected with the similarly marked sides of the neck posterior to the auriculars. These differences would commonly be considered of specific value but our series covers the range of the species with sufficient thoroughness to demonstrate the complete intergradation of the Ecuadorean and Peruvian forms.

Specimens from northwestern Ecuador are practically unbarred below, but, as we proceed southward, traces of bars become more frequent, and some specimens from Guayaquil and Naranjo are as fully barred below as the average Peruvian specimen of *major*. All the specimens from this area, however, that is, Esmeraldas to Guayaquil and

Puna Island, have the entire auricular region brown and in this respect are typical of *callonotus*.

Turning now to the southern form, only one Peruvian specimen is without bars on the underparts and all have the white, usually black-barred postocular wedge. A specimen from Chilaco, however, has only the faintest trace of bars on the breast but the postocular wedge is well developed though unbarred.

All specimens from southwestern Ecuador are typical of *major* until we reach Santa Rosa, when females show in varying degrees the characters of both *callonotus* and *major*. Three show obvious traces of bars, or rays, below. Of these, two have the postocular wedge fairly well-developed and barred, while in the third it is reduced to a narrow, unbarred white stripe. The fourth specimen is as unbarred below as the most extreme example of *callonotus*, and the postocular wedge, as in the last-named example, is narrow and unbarred. This fourth bird is clearly nearer to *callonotus* than to *major*, while the remaining three, on the other hand, are nearer the latter than the former, but all are intermediates and their characters apparently prove beyond question the intergradation of the unbarred with the barred bird.

(1717) **Veniliornis callonotus major** (Berl. & Tacz.)

Chloronerpes *callonotus major* BERL. & TACZ., P. Z. S., 1883, p. 570 (Tumbez).

Chloronerpes callonotus, TACZ., 1877, p. 327 (Tumbez).

Chloronerpes callonotus peruvianus TACZ., Orn. Per. III, 1886, (Chepen, Peru).

Santa Rosa, 4 ♀; Casanga, 2 ♂, 3 ♀; Cebollal, 2 ♂, 1 ♀; Alamor, 1 ♂, 1 ♀; Guainche, 1 ♀. Peru: Paletillas, 2 ♀; Chilaco, 3 ♂, 2 ♀; Samate, 4 ♂, 2 ♀; Lamor, 2 ♂, 1 ♀; Tumbez, 2 ♂; Sullana, 4 ♂, 1 ♀; Palambra, 3 ♂, 2 ♀; Perico, Chinchipe, 2 ♂, 1 ♀.

RANGE.—Tropical Zone: Equatorial Arid Fauna from the Marañon Valley north, at least, to Santa Rosa and probably to the Rio Naranjal.

The relations of this race to *callonotus* are given above.

(1719) **Veniliornis equifasciatus** Chapm.

Veniliornis nigriceps equifasciatus CHAPM., Bull. A. M. N. H., XXXI, 1912, p. 144 (Santa Isabel, Col.).

Chloronerpes malherbii (nomen nudum) SCL., Cat. Am. Bds., 1862, p. 338 (Matos; Napo); B. & T., 1884, p. 307 (Cechce); 1885, p. 106 (San Rafael).

Eleopicus nigriceps, S. & F., 1900, p. 15 (Pun; Papallacta); GOODF., 1902, p. 209 (Intac; Baeza).

Veniliornis nigriceps, L. & R., 1922, p. 67 (Mindó; near Nanegal).

El Paso, near Nabon, 1 ♀; Taraguacocha, 1 ♀; upper Sumaco, 1 ♂, 1 ♀.

RANGE.—Humid Temperate Zone; Ecuador and Central Andes of Colombia.

These birds agree with three Colombian specimens including the type. The fact that *V. nigriceps* is evidently a bird of the Tropical Zone, its apparent absence from Peru, and its striking difference from *equifasciatus* indicates that the two birds do not intergrade.

(1720a) *Veniliornis dignus bæzæ* Chapm.

Veniliornis dignus bæzæ CHAPM., Am. Mus. Novit., No. 96, 1923, p.8 (Bæza, Ec.).

Chloronerpes dignus, GOODF., 1902, p. 209 (Bæza).

Bæza, 3♂ (inc. type), 1♀; near Macas, 1♂.

Subspecific Characters.—Similar to *V. d. dignus* SCL. & SALV., of the Subtropical Zone in Colombia, but yellow of the underparts paler, olive bars deeper; bars on rump and upper tail-coverts wholly or nearly wanting; outer tail-feathers much less definitely marked, the lighter bars more or less fused with the darker instead of being clearly defined from and equal in width to them.

RANGE.—Subtropical Zone: the species, Colombia, all three Andean ranges, and eastern Ecuador; the race, eastern Ecuador.

(1725) *Veniliornis agilis agilis* (Cab. & Heine)

Campias agilis CAB. & HEINE, Mus. Heine, IV, sect. ii, 1863, p. 147 (Rio Napo). Zamora, 1♂, 1♀.

RANGE.—Northeastern Peru through eastern Ecuador to Colombia.

The very narrow white bars below characterize this form. In *fidelis*, which may be its east Colombian representative, the bars are still further reduced, being replaced on the breast by shaft-streaks.

(1733) *Veniliornis ruficeps hæmatostigma* (Malh.)

Mesopicus hæmatostigma MALH., Monogr. Pictæ, II, 1862, p. 72, pl. lxi, figs. 2-5 (Peru).

Dendrobates hæmatostigma, HARG., Cat. Bds. B. M., XVIII, 1890, p. 364 (Sarayu—Buckley).

? *Chloronerpes cecilæ*, GOODF., 1902, p. 209 (Bæza).

Rio Suno, 1♀.

RANGE.—Tropical Zone: the species, Amazonia; the race, upper Amazonia; Bolivia to eastern Colombia.

We have for comparison only specimens from La Morelia in southeastern Colombia.

(1738) **Veniliornis kirki ceciliae** (Malh.)

Mesopicus ceciliae MALH., Rev. et Mag. de Zoöl., 1849, p. 538 (Colombia).

Chloronerpes ceciliae, SCL., 1860d, p. 286 (Babahoyo); 1860e, p. 297 (Esmeraldas)

Chloronerpes ceciliae, B. & T., 1883, p. 571 (Chimbo).

Eleopicus ceciliae, S. & F., 1900, p. 15 (Rio Peripa).

Bucay (Rhoads).

Chone, 1 ♂; Rio de Oro, 1 ♂, 1 ♀; Naranjo, 2 ♂, 1 ♀; Santa Rosa, 2 ♂; La Puente, 2 ♂; Punta Santa Ana, 1 ♂, 1 ♀; Pullango, 1 ♂.

RANGE.—Tropical Zone: the species, northern South America, Tobago, and Guiana to Costa Rica and western Ecuador; the race, northern Colombia to western Ecuador and eastern Panama.

With 39 specimens, including 10 topotypical (Magdalena Valley) specimens of *ceciliae* and 9 of "*dariensis*," I can find no ground for the recognition of more than one race of this species in Colombia, eastern Panama, and Ecuador. None of the characters ascribed to *dariensis* is supported by our series, birds from eastern Panama agreeing with those from the Magdalena Valley. Ecuadorean specimens average more broadly barred below, but the difference is too inconstant to be racially diagnostic.

(1748) **Celeus citreopygius** Scl. & Salv.

Celeus citreopygius SCL. & SALV., P. Z. S., 1867, p. 753 (Yurimaguas); GOODF., 1902, p. 210 (Rio Coca); HARG., Cat. Bds. B. M., XVIII, 1890, p. 429 (Sarayacu).

Celeus jumana, SCL., 1858a, p. 74 (Napo).

RANGE.—Tropical Zone; northeastern Peru and eastern Ecuador.

Apparently an upper Amazon representative of *C. jumana*. We have no Ecuadorean specimens.

(1751) **Celeus loricatus loricatus** (Reich.)

M[eiglyptes] loricatus REICH., Scans. Pic., 1854, p. 405, pl. dclxxxi, figs. 4495–96 ("N. Peru").

Celeus undatus, SCL., 1860d, p. 286 (Babahoyo).

Celeopicus fraseri MALH., Monogr. Pictæ, II, 1862, p. 16, pl. xliii, bis, fig. 5 (Babahoyo).

RANGE.—Tropical Zone: the species, western Ecuador north to Costa Rica; the race, western Ecuador and western Colombia north to the lower Cauca-Magdalena Valley.

This is evidently a rare bird in Ecuador whence it is known only from Babahoyo. If it occurs in Peru it should be found only in the north-western part of that country. Since, however, the humid Tropical Zone which it inhabits is barely present in northwestern Peru, I query the correctness of the type-locality.

(1752) *Celeus grammicus* (Malh.)

Picus grammicus MALH., Mém. Soc. Roy. Liège, 1845, p. 69 ("Bresil").

Celeus grammicus, SCL., 1858a, p. 74 (Napo); HARG., Cat. Bds. B. M., XVIII, 1890, p. 435 (Sarayacu).

RANGE.—Tropical Zone: Peru and eastern Ecuador to Cayenne.

We have no Ecuadorean specimens.

(1753) *Celeus spectabilis* Scl. & Salv.

Celeus spectabilis SCL. & SALV., P. Z. S., 1880, p. 161 (Sarayacu, Ec.); HARG., Cat. Bds. B. M., XVIII, 1890, p. 435, pl. x (fig. of type).

RANGE.—Eastern Ecuador.

Known only from the type; a very distinct species apparently most nearly related to *loricatus*.

(1760) *Phlœocestes rubricollis rubricollis* (Bodd.)

Picus rubricollis BODD., Tabl. Pl. Enl., 1783, p. 37 (Cayenne).

Campophilus rubricollis, S. & F., 1900, p. 15 (Valle de Zamora; Valle del Rio Santiago).

Rio Suno, 2 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, Venezuela to southern Brazil; the race, Guiana to the upper Amazon.

The males listed above measure, wing 183 to 192 mm.; the female, wing 195 mm.; they are thus larger than Guianan birds. One of the males has the outer web of the inner primaries largely chestnut for an inch beyond the greater coverts, a marking which indicates the intergradation of this form with the southern *trachelopyrus*.

(1762) *Phlœocestes*¹ *melanoleucos melanoleucos* (Gmel.)

Picus melanoleucos GMEL., Syst. Nat., I, 1788, p. 426 (Surinam).

Dryocopus albirostris, SCL., 1858a, p. 75 (Napo); 1858b, p. 460 (Gualaquiza).

Campophilus melanoleucos, S. & F., 1900, p. 16 (Valle del Zamora); GOODE, 1902, p. 209 (Rio Coca).

Rio Suno, 2 ♂, 1 ♀; below San José, 3 ♂, 1 ♀; Rio Zamora, 1 ♂, 1 ♀.

RANGE.—The species, Paraguay to Panama; the race, Tropical Zone east of the Andes.

Ecuadorean specimens are apparently typical.

¹ *Scapanus* Cab. & Heine (type *Picus melanoleucos* Gmel.) is considered by W. DeW. Miller as not sufficiently distinct from *Phlœocestes* Cab. (type *Picus robustus* Vieill.).

(1764) *Phlœocestes guayaquilensis* (Less.)

**Picus guayaquilensis* LESS., Echo du Monde Savant, 1845, p. 920 (Guayaquil).

Dryocopus albirostris, SCL., 1859a, p. 146 (Pallatanga).

Dryocopus sclateri, SCL., 1860a, p. 71 (Pallatanga); 1860d, p. 286 (Babahoyo).

Campephilus sclateri, B. & T., 1883, p. 570 (Chimbo); 1884, p. 307 (Cayandede).

Campophilus guayaquilensis, S. & F., 1900, p. 16 (Rio Peripa); GOODF., 1902, p. 209 (Santo Domingo); MEN., 1911, p. 30 (Santo Domingo); L. & R., 1922, p. 67 (below Mindo).

Bucay (Rhoads).

Esmeraldas, 2♂; Rio de Oro, 1♂; Chongon Hills, 1♀; Naranjo, 2♂; Casanga, 1♀; Punta Santa Ana, 1♀; Alamor, 3♂, 1♀; San Bartolo, 1♂. Peru: Paletillas, 1♀; Lajilla, Tumbes, 1♂, 1♀.

RANGE.—Tropical Zone; western Ecuador and northwestern Peru.

While this species is apparently a representative of the *melanoleucos* group most nearly related to *malherbii*, its differences from that form are evidently of specific value. In brownish color of the black areas and brownish quills, the race exhibits a differentiation similar to that shown by *Ceophlæus l. fuscipennis*. The barred rump and upper tail-coverts, absence of whitish at the base of the bill in the male, and wholly red crown in the female are other characters separating *guayaquilensis* from *malherbii*.

(1765) *Megapicos pollens pollens* (Bonap.)

Picus pollens BONAP., Atti Sest. Riun. Sci. Ital., 1845, p. 406 (Colombia).

Dryocopus grayii, SCL., 1859a, p. 146 (Pallatanga).

Campephilus pollens, B. & T., 1884, p. 307 (Cayandede; Chaguarpata).

Campophilus pollens, S. & F., 1900, p. 16 (Pun); GOODF., 1902, p. 209 (West Andes, 5,000 to 7,000 ft.); MEN., 1911, p. 30 (Gualea); L. & R., 1922, p. 67 (near Gualea, Nanegal, and Mindo).

El Chiral, 1♂, 1♀; Salvias, 1♀; above Baeza, 4♂, 5♀; near Baños, 2♀; upper Sumaco, 2♂, 1♀.

RANGE.—Humid Temperate and upper Subtropical Zones: the species, Colombia, Ecuador, and eastern Peru; the race, Colombia and Ecuador.

There is much variation in the amount of ochraceous-tawny in the rump, an adult female from La Florida, western Colombia, being almost as uniformly this color as *peruviana*. In the latter, however, the inter-scapulars are strongly tinged with tawny, a condition not shown by any Colombian or western Ecuadorean bird, but evident in a specimen from the vicinity of Baños, eastern Ecuador, which is clearly intermediate between *pollens* and *peruviana*. Although this species appears not to have been recorded from Peru until Cory described *peruviana*

from Molinopampa, we have three specimens from Rumicruz (9,700 ft.) east of Lake Junin. They show that this form is to be distinguished from *pollens pollens* only by its wholly ochraceous-tawny rump and back, and the large amount of this color in the interscapulars.

(1767) **Cniparchus hæmatogaster** *Tsch.*

Picus hæmatogaster TSCH., Arch. für Naturg., 1844, p. 302, pl. xxv (Peru).

Dryocopus hæmatogaster, SCL., 1858a, p. 75 (Napo).

Campephilus hæmatogaster, B. & T., 1885, p. 106 (Mapoto).

Campophilus hæmatogaster, S. & F., 1900, p. 16 (San José).

Zamora, 1♂, 2♀; near Macas, 1♂; Baeza, 1♂, 1♀; lower Sumaco, 3♂, 2♀
Peru: Chaupe (n. e. Huancabamba), 2♂, 2♀; San Ignacio, 1♀; Santo Domingo (Inca Mine), 2♂.

RANGE.—Subtropical Zone; southeastern Peru to the Bogotá region.

A female in juvenal plumage is wholly black below. The rump is ochraceous-buff. Specimens from southeastern Peru seem to have somewhat more buff on the back than those from farther north.

(1768) **Cniparchus splendens** (*Harg.*)

Campophilus splendens HARG., Ibis, 1889, p. 58 ("Bogotá").

Campephilus hæmatogaster, HART., 1898, p. 497 (Cachavi).

Campephilus splendens, HART., 1898, p. 497 (Paramba).

Campophilus hæmatogaster splendens, L. & R., 1922, p. 67 (near Gualea).

RANGE.—Tropical Zone; Colombian-Pacific Fauna from northwestern Ecuador to Veragua.

Comparison of eighteen specimens of this bird from Barbacoas and Puerto Valdivia, Colombia, and eastern Panama, with the Peruvian and eastern Ecuadorean specimens of *hæmatogaster* listed above leaves no doubt of their specific distinctness. From *hæmatogaster*, *splendens* differs in being less red, more barred below, the black on the throat is less extended posteriorly and the wing markings are Naples yellow instead of white, and nearer the tips of the feathers than in *hæmatogaster*. These differences impress me as being of specific value, and furthermore the two birds inhabit different zones, which is added evidence of their distinctness.

(1770) **Ceophlæus lineatus lineatus** (*Linn.*)

Picus lineatus LINN., Syst. Nat., I, 1766, p. 174 ("Habitat in Cayana").

Ceophlæus lineatus, HARG., Cat. Bds. B. M., XVIII, 1890, p. 509 (Monji, Sarayacu).

Zamora, 1 ♂; below San José, 1 ♂.

RANGE.—Tropical Zone: the species, Paraguay to Mexico; the race, South America east of the Andes.

The Zamoran specimen is more ochraceous below than average specimens of true *lineatus* and thus more nearly resembles *mesorhynchus* than typical *lineatus* in color. The wing, however, measures 196 mm.

(1771) ***Ceophlæus lineatus fuscipennis* (Scl.)**

Dryocopus fuscipennis SCL., P. Z. S., 1860, p. 286 (Babahoyo); 1860e, p. 297 (Esmeraldas).

Ceophlæus fuscipennis, S. & F., 1900, p. 16 (Babahoyo; Rio Peripa).

Esmeraldas, 1 ♂, 3 ♀; Rio de Oro, 1 ♂; Chone, 3 ♀; Daule, 1 ♂, 1 ♀; Chongoncito, 1 ♂, 1 ♀; Chongon Hills, 1 ♀; Bucay, 1 ♂, 1 ♀; Punta Santa Ana, 1 ♀; Rio Pindo, 1 ♀; Cebollal, 1 ♂, 1 ♀.

RANGE.—Tropical Zone; western Ecuador and northwestern Peru.

The differences between this form and its nearest ally, *C. l. mesorhynchus* of Colombia and Panama, are evidently due to greater amount of black pigment in the plumage of the latter which makes all its black areas more intensely black, the bars below broader and more definite, and the shafts of wing and tail-quills blackish instead of brownish. These differences seem to me to be racial in character and the probability that the ranges of the two forms are connected leads me to believe that they intergrade. Specimens of *fuscipennis* from Peru and southwestern Ecuador average lighter below and browner above than those from the northern part of the range of the race, and thus exhibit a further development of the characters which distinguish *fuscipennis* from *mesorhynchus*.

(1775) ***Picumnus rufiventris* (Bonap.)**

Athenurus rufiventris BONAP., P. Z. S., 1837, p. 120 (Ecuador).

Picumnus rufiventris, HARG., Cat. Bds. B. M., XVIII, 1890, p. 527 (Sarayacu).

Rio Suno, 5 ♂, 5 ♀; below San José, 2 ♀.

RANGE.—Tropical Zone; Bolivia to eastern Ecuador and east to western Brazil.

A distinct species with no near relatives.

(1777) ***Picumnus castelnaui* Malh.**

Picumnus castelnaui MALH., Monogr. Pictidæ, II, 1862, p. 281 ("Sarayacou"); HARG., Cat. Bds. B. M., XVIII, 1890, p. 528 (Rio Napo).

RANGE.—Tropical Zone; northeastern Peru and eastern Ecuador.

We have no specimens of this species.

(1786) *Picumnus sclateri* Tacz.

Picumnus sclateri TACZ., P. Z. S., 1877, p. 327 (Lechugal).

Santa Rosa, 1 ♀; Portovelo, 1 ♂, 1 ♀; Rio Pindo, 1 ♂; Alamor, 7 ♂, 2 ♀; Cebollal, 1 ♂, 1 ♀; Guainche, 1 ♂; Rio Pullango, 1 ♀. Peru: Paletillas, 1 ♂, 3 ♀; Palambla, 3 ♂, 2 ♀.

RANGE.—Tropical Zone; Equatorial Arid Fauna from northwestern Peru to, at least, Santa Rosa and probably Rio Naranjal, Ec.

Possibly an arid-region representative of *P. lafresnaye*i of eastern Ecuador.

(1786a) *Picumnus parvistriatus* Chapm.

Picumnus parvistriatus CHAPM., Am. Mus. Novit., No. 18, 1921, p. 6 (Daule, Ec.).

Daule, 1 ♂ (type); Manta, 1 ♀; Chongoncito, 1 ♂; Guayaquil, 1 ♀.

Specific Characters.—Similar to *Picumnus sclateri* TACZ., but underparts much less heavily marked, the black breast-bars decidedly narrower than the white ones, the streaks of the abdomen and flanks comparatively obsolete; white crown-spots larger.

RANGE.—Tropical Zone; Equatorial Arid Fauna from the Prov. of Guayas to the Prov. of Manaví.

While obviously a representative of *P. sclateri*, our material gives no evidence of intergradation with that form.

(1803) *Picumnus lafresnaye*i Malh.

*Picumnus lafresnaye*i MALH., Monogr. Picidæ, II, 1862, p. 282, figs. 4, 5 (Ecuador); S. & F., 1900, p. 16 (Gualaquiza; Valle del Rio Santiago).

*Picumnus lafresnaye*i, B. & T., 1885, p. 106 (Mapoto).

Zamora, 2 ♂, 3 ♀; below San José, 5 ♂, 2 ♀; Rio Suno, 2 ♂; below Oyacachi, 1 ♂.

RANGE.—Tropical, up to the Subtropical Zone, eastern Ecuador, and north-eastern Peru.

The Peruvian form, *P. flavifrons*, has the upperparts less barred and the crown spotted with yellow instead of red.

(1810) *Picumnus olivaceus harterti* Hellm.

Picumnus olivaceus harterti HELLM., Bull. B. O. C., XXIII, 1909, p. 67 (Paramba)

Picumnus granadensis, SCL., 1860c, p. 95 (Nanegal); 1860d, p. 287 (Babahoyo); B. & T., 1883, p. 570 (Chimbo; Yaguachi); 1885, p. 106 (Yaguachi); HART., 1898, p. 497 (Chimbo); S. & F., 1900, p. 16 (Vinces); GOODF., 1902, p. 209 (Santo Domingo)

Picumnus olivaceus granadensis, HART., 1902, p. 606 (Chimbo; Paramba; Santo Domingo, w. Ecuador).

Esmeraldas, 3♂, 4♀; Mindo, 1♂, 1♀; Rio de Oro, 1♀; Duran, 1♀; Naranjo, 1♂; Bucay, 1♀; Chimbo, 1?; Santa Rosa, 1♀; La Chonta, 1♂; Cebollal, 2♂.

RANGE.—Tropical Zone: the species, western Ecuador to Honduras; the race, western Ecuador and southwestern Colombia.

Unless *P. g. granadensis* is to be considered a representative of *olivaceus*, the latter is absent from the greater part of western Colombia but reappears in eastern Panama (cf. Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 358).

ORDER PASSERIFORMES

FAMILY HYLACTIDÆ. TAPACOLAS

(1812) *Scytalopus latrans* HELLM.

Scytalopus latrans HELLM., Field Mus. Pub. No. 223, 1924, p. 11 (Popayan, Col.)

Scytalopus magellanicus, B. & T., 1884, p. 303 (Chaguarpata; Cechce); 1885, p. 102 (San Rafael); S. & F., 1899b, p. 34 (Chaupi; Lloa); GOODF., 1902, p. 67 (Pichincha; Papallacta, in bushes).

Scytalopus niger, MEN., 1911, p. 31 (Lloa). The young bird (sp. d) described is evidently not this species. (See Chapman, Auk, XXXII, 1915, p. 411.)

Scytalopus magellanicus niger, L. & R., 1922, p. 67 (Pichincha; below Calacali).

Hacienda Garzon; Pagma Forest (Rhoads).

Pichincha, 4♂, 2♀; Yanacocha, 3♂, 2♀; Verdecocha, 5♂, 2♀; El Chiral, 2♂; Taraguacocha, 6♂; above Zaruma, 2♂; Celica, 1♂, 1♀; Baeza, 1♂, 1♀; above Baeza, 1♀; Tambillo, Rio Upano, 2; upper Sumaco, 1♂, 3♀.

RANGE.—Temperate Zone from central Peru to western Venezuela.

Common in the humid Temperate Zone and in southwestern Ecuador, descending at Chiral to an altitude of 5,300 feet. There is considerable variation in size and intensity of coloration in our series but it is apparently individual. Represents *S. fuscus* Gould (= *niger* Swains.) of central Chile.

(1813) *Scytalopus unicolor* Salv.

Scytalopus unicolor SALV., Nov. Zoöl., II, 1895, p. 15 (Cajabamba, Peru).

Scytalopus unicolor unicolor, HELLM., Field Mus. Pub. No. 223, p. 14, footnote (crit.).

Above Zaruma, 1♀.

RANGE.—Subtropical Zone, Cajabamba, Peru, to Zaruma, Ec.

Our one Ecuadorean specimen, provisionally identified by Hellmayr, agrees with others in a small series from Palambra, Piura.

NOTE.—*Scytalopus griseicollis* is recorded by Sclater from "Quijos" (P. Z. S. 1854, p. 11) but this author does not include Ecuador in the range of the species (Cat. Bds. B. M., XV, p. 340), nor is there an Ecuadorean specimen of it in the British Museum.

(1822) *Scytalopus femoralis micropterus* Scl.

Agathopus micropterus SCL., P. Z. S., 1858, p. 69 (Napo, Ec.); 1858d, p. 149 (Rio Napo); B. & T., 1885, p. 102 (Machay; Mapoto).

Scytalopus analis, HART., 1902, p. 615 (Paramba).

Above Zaruma, 1♂; Guayaba, 1♂; Sabanilla, 1 ?; lower Sumaco, 16♂, 12♀; San José de Sumaco, 1♂; above Baeza, 1♀; below Oyacachi, 1♂.

RANGE.—Subtropical Zone: the species, Bolivia to Colombia; the race, Ecuador and Colombia.

Compared with two second-year males from Chelpes, Peru, which may be accepted as typically representing true *femoralis*, eastern Ecuadorean birds are larger; the tail, particularly, is longer (55 to 60 mm.) and the flanks are more heavily barred. A male from Guayaba has a small white patch near the center of the crown and this is the only specimen in our series of thirty-odd examples having white on the head. On the other hand, nine out of twenty-four Colombian examples exhibit this white mark. Colombian birds, it may be added, are smaller than those from Ecuador and approach the Peruvian race in size.

(1815) *Myornis senilis* (Lafr.)

Merulaxis senilis LAFR., Rev. Zoöl., 1840, p. 103 ("Bogotá").

Scytalopus senilis, GOODF., 1902, p. 67 (Pichincha, 13,000 ft.; Papallacta).

Myornis senilis, L. & R., 1922, p. 67 (Pichincha).

Pichincha, 3♂, 1♀; upper Sumaco, 1♂, 1♀; Galgalan, Rio Upano (10,000 ft.) 2 juv.

RANGE.—Upper part of Temperate Zone of both eastern and western Andes of Ecuador north to the Bogotá region.

Not a common species. The male of our pair of birds is decidedly darker than the female, but I am unable to say whether the difference is sexual or individual.

The juvenal plumage is uniform cinnamon-brown above, including the wings and tail, ochraceous-tawny below with blackish subterminal loops or bars on the tertials, and a few faint bars on the upper tail-coverts. By a complete molt, including wings and tail, this plumage is succeeded by that of the adult.

(1828) *Liosceles thoracicus erithacus* Scl.

Liosceles erithacus SCL., Cat. Bds. B. M., XV, 1890, p. 344 (Sarayacu).

Sarayacu, 1 (Buckley).

RANGE.—Tropical Zone: the species, western Brazil to southeastern Peru and eastern Ecuador; the race, known only from the type-locality.

Examination of the material in the British Museum induces the belief that the Ecuadorean form is only racially separable.

(1837) *Acropternis orthonyx infuscatus* Salvad. & Festa

Acropternis infuscatus SALVAD. & FESTA, Boll. Mus. Tor., XIV, 1899, No. 362, p. 34 (Frutillas; Lloa).

Acropternis infuscata, L. & R., 1922, p. 67 (Chinquil; Pichincha).

Merulaxis orthonyx, JARD., 1856, p. 91 (e. Cordillera).

Acropternis orthonyx, GOODF., 1902, p. 67 (Lloa; 1,000 ft. above Quito).

Acropternis orthonyx infuscatus, MEN., 1911, p. 31 ("Upper Napo"!).

Pichincha, 2 ♂, 2 ♀; above Lloa (10,200 ft.), 1 ♀; "Quito," 4.

RANGE.—Humid Temperate Zone: the species, northern Ecuador to Méridan Andes, Venezuela; the race, northern Ecuador.

Our specimens are all from Pichincha, but Jameson records the species from the eastern Cordillera, and Menegaux's record from the "upper Napo" probably came from the East Andes.

Unlike *Scytalopus*, a Temperate Zone hylactine form of apparent southern origin, *Acropternis* has no known close ally in the South Temperate.

Compared with two specimens from Laguneta, Colombia, and eight from near Mérida, Venezuela, Ecuadorean birds average blacker below and, to a lesser degree, above and have, as a rule, narrower brownish margins on the wing-quills. Two Ecuadorean birds, however, can be matched by Méridan ones, and I am not convinced of the validity of the proposed form.

(2030) *Melanopareia*¹ *elegans elegans* (Less.)

Synallaxis elegans LESS., Œuvres Compl. Buff., Ed. Lévêque, XX, 1847, p. 289 (Guayaquil, Ec.); HELLM., Nov. Zool., XIII, 1906, p. 334 (crit.).

? *Formicivora speciosa* SALV., Ibis, 1876, p. 494 (Puna Is.).

Synallaxis subspeciosa, S. & F., 1899b, p. 21 (Balzar).

¹ *Melanopareia* Reich., 1853, replaces *Rhoporchilus* Ridgw., 1909; see Hellm., Nov. Zool., XXVIII, 1921, p. 267.

W. De W. Miller has shown that *Melanopareia* belongs with the *Hylactidæ* rather than with the *Formicariidæ*.

Synallaxis elegans elegans, HELLM., Nov. Zoöl., XIII, 1906, p. 334 (Guayaquil; Balzar, Ec.; n. w. Peru; crit.).

Synallaxis elegans speciosa, HELLM., Nov. Zoöl., XIII, 1906, p. 335 (Puna Is., crit.).

Puna Is., 2♂, 1♀; Chone, 2♀ (? Portovelo, 1♂, 1♀; Rio Pindo, 2♂, 2♀; Punta Santa Ana, 1♂).

RANGE.—Arid Tropical Zone upward to 4,000 ft.; the species, Equatorial Arid Fauna, from Trujillo, Peru, to Manaví, Ec.

This apparent representative of the Bolivian *M. maximiliani* has evidently reached the coast of Peru and Ecuador through the valley of the Marañon, where an intermediate form, *M. maranonicus*,¹ has recently been discovered. (Fig. 11, p. 70.)

In addition to the Ecuadorean specimens here listed, I have five males and two females from Palambla, Peru, and two males and two females from Trujillo, Peru, giving me, in all, 13 males and 10 females. Nevertheless, I am unable satisfactorily to determine the relationships of these birds.

With the exception of two from Puna Island, the males of this series present no variations in color which can be correlated with locality. These two birds have the back much grayer, less olivaceous, the rufous margins to the wings paler, the superciliary and throat whiter (nearly pure white) than any other birds in the series. In the color of the underparts posterior to the throat, they can be matched by other birds in the series, some of which indeed are paler than the Puna birds. The question is, are the well-marked differences presented by the Puna birds racial or seasonal. They were taken in April, while the remainder of our Ecuadorean males were taken in August (1), September (2), and December (1). The Palambla males were taken in September and those from Trujillo in April. The mainland series, therefore, fairly well covers the year, and the Trujillo birds appear to be in the same stage of plumage as those from Puna Island; nevertheless, they are no more like them than any others from the mainland. I conclude, therefore, that the characters shown by the Puna Island birds are racial, not seasonal, and I base this opinion, not only on the differences, but also on their resemblances to the mainland series. That is, if their gray backs and white throats are due to seasonal fading, why is not some degree of fading exhibited by their underparts?

Turning to the females, the four Peruvian specimens (Trujillo, 2, April; Palambla, 1, Sept. 2, and 1 Oct. 3) are at once distinguishable from the six Ecuadorean females by their olivaceous instead of black or black-

¹ Chapman, Am. Mus. Novit., No. 123, 1924, p. 3.

ish crowns. In one Palambla specimen the crown is only slightly darker than the back; in the others the difference is more marked; but in none is it so pronounced as in the Ecuadorean specimens. In three of these the crown is dull black; in three others it is black with a faint dark olive wash.

Hellmayr, however, states that "four females from Platanar (west of Otuzco) and Trujillo seen by me have the pileum sooty black slightly tinged with grayish olive, and not appreciably different from a Balzar [Ec.] specimen."¹

In the light of our material I am convinced, however, that a well-marked difference exists between Peruvian and Ecuadorean females which Dr. Hellmayr's single Ecuadorean female did not reveal, and I have no hesitation therefore in recognizing the Peruvian bird under the name *Melanopareia elegans paucalensis* (Tacz.).²

It remains to settle the status of the two forms described from Ecuador, and this, unfortunately, in default of specimens from Guayaquil, I cannot do. However, the fact that a female from Manaví is essentially like one from Puna Island indicates, as might be expected, that, as usual, there is no difference between the Puna Island form and that of the adjoining mainland, when it would doubtless follow that *speciosa* (Salvin) is a synonym of *elegans* (Less.) and I so treat it. This leaves us with the four males and three females from Portovelo, Río Pindo and Punta Santa Ana in which the males are like *paucalensis*, while the females have black or blackish crowns. If I am correct in believing the Puna Island birds are *elegans*, then these seven specimens from the interior of southwestern Ecuador represent an undescribed race, which, however, it would be unwise to name without comparison with topotypes of *elegans*. Furthermore, these southwestern Ecuadorean birds average smaller than the remaining birds of the series, as the appended measurements of males show. A similar difference is shown by the females. (See Addenda.)

Measurements of Males

	Wing mm.	Tail mm.
<i>Melanopareia elegans elegans</i> , Puna Is., Ec.	55	55
<i>Melanopareia elegans elegans</i> , Puna Is., Ec.	55.5	57
<i>Melanopareia elegans</i> subsp., Portovelo, Ec.	52.5	55
<i>Melanopareia elegans</i> subsp., Punta Santa Ana, Ec.	52	56
<i>Melanopareia elegans</i> subsp., Río Pindo, Ec.	50	52
<i>Melanopareia elegans</i> subsp., Río Pindo, Ec.	50	50
<i>Melanopareia elegans paucalensis</i> , Palambla, Peru	54	55

¹ Field Mus. Pub., No. 223, 1924, p. 169; footnote.

² Orn. Per., II, 1884, p. 131 (Paucal).

Measurements of Males, continued

	Wing mm.	Tail mm.
<i>Melanopareia elegans paucalensis</i> , Palambla, Peru	55	55
<i>Melanopareia elegans paucalensis</i> , Palambla, Peru	52	54.5
<i>Melanopareia elegans paucalensis</i> , Palambla, Peru	52	53
<i>Melanopareia elegans paucalensis</i> , Palambla, Peru	54	58
<i>Melanopareia elegans paucalensis</i> , Trujillo, Peru	56	61
<i>Melanopareia elegans paucalensis</i> , Trujillo, Peru	54	57
<i>Melanopareia maranonicus</i> , Chinchipe, Peru	57	73
<i>Melanopareia maranonicus</i> , Chinchipe, Peru	57	67
<i>Melanopareia maranonicus</i> , Chinchipe, Peru	60	71

FAMILY CONOPOPHAGIDÆ. GNATEATERS

(1839a) *Conopophaga aurita occidentalis* Chubb

Conopophaga aurita occidentalis CHUBB, Bull. B. O. C., XXXVIII, 1917, p. 34. (Rio Napo, Ec.).

Rio Suno, 8♂, 3♀; below San José, 1♂, 1♀.

RANGE.—Tropical Zone: the species, Guiana to eastern Ecuador and eastern Colombia; the race, eastern Ecuador to the Rio Madeira.

The back is more olivaceous, less rufescent; the crown darker brown than in two Guianan birds. Southeastern Colombian birds are nearer to the Guianan than to the east Ecuadorean form.

(1843) *Conopophaga peruviana* Des Murs

Conopophaga peruviana DES MURS, Voy. Casteln., 1856, p. 50, pl. xvi, fig. 1 (Pebas, Peru).

RANGE.—Tropical Zone; upper Amazonia from southern Peru to Ecuador.

Our only specimens of this species are from the "upper Amazon" and southeastern Peru.

(1844) *Conopophaga ardesiaca* Lafr. & d'Orb. (?)

Conopophaga ardesiaca LAFR. & D'ORB., Syn. Av. I, 1837, p. 13 (Yungas, Bol.); SCL., Cat. Bds. B. M., XV, 1890, p. 332 (Rio Napo).

RANGE.—Bolivia (north to eastern Ecuador?).

I have seen no authentic female of this species, and am therefore unable to confirm Sclater's identification of a Napo specimen. This specimen, which I have examined, has the forehead rust-brown, the back, wings, and tail brown, the eye-stripe ashy, whereas it might be

expected that the eye-stripe in the female of *ardesiaca* would be white as in the female of *peruviana*. If the species is represented in Ecuador, it would, of course, be by the race *saturata* Berl. & Stolz. rather than by the typical form.

(1847) ***Conopophaga castaneiceps brunneinucha* Berl. & Stolz.**

Conopophaga castaneiceps brunneinucha BERL. & STOLZ., P. Z. S., 1896, p. 385 (Garita del Sol, Peru).

Sabanilla, 1 ♂, 1 ♀; Zamora, 1 ♀.

RANGE.—Chiefly Subtropical Zone: the species, Peru to Colombia; the race, eastern Peru and eastern Ecuador.

The crown in the male is more like that of true *castaneiceps*, while the back is olivaceous as in *brunneinucha*. The Ecuadorean form is thus apparently intermediate but nearer to that from Peru. It is surprising, however, to find that *C. castaneiceps chocoensis* has the back olive (though of a deeper tone) as in *brunneinucha*, from which, indeed, it differs chiefly in the darker abdomen and browner flanks. The species has not before been recorded from Ecuador.

(1852a) ***Corythopsis torquata sarayacuensis* Chubb**

Corythopsis torquata sarayacuensis CHUBB, Bull. B. O. C., XXXVIII, 1918, p. 48 (Sarayacu, Ec.).

Zamora, 1 ♂; Rio Suno, 4 ♂, 5 ♀.

RANGE.—Tropical Zone: the species, Guianas and Para to Bolivia and eastern Ecuador; the race, eastern Ecuador to ?.¹

Fourteen specimens from the upper and lower Orinoco, British Guiana and Para agree, and differ from five Peruvian and west Bolivian (Chinchi to Dept. Cochabamba) birds in being smaller (♂, wing 66 instead of 72 mm.), in being less streaked below, and, especially, in having the flanks with little or no olivaceous wash. The upperparts are so variable in color that no constant or even average difference between the two series can be detected.² The back in birds from the same locality varies, for example, from olivaceous to a rufescent brown. Compared with these two series, our ten Ecuadorean birds resemble *anthoides* in size, and in color are intermediate, the upperparts being as in *anthoides*, the underparts as in *torquata*.

¹ Hellmayr includes the Orinoco and Rio Madeira in the range of this race, but our Orinocoan specimens are nearer to those from Guiana and Para.

² Hellmayr (Field Mus. Pub. No. 223, p. 35) states that the pileum in *torquata* "is always brown like the back."

FAMILY FORMICARIIDÆ.¹ ANT BIRDS(1854) *Cymbilaimus lineatus intermedius* (Hart. & Goods.)

Cymbilanius lineatus intermedius HART. & GOODS., Nov. Zoöl., 1917, p. 495 (Rio Madeira).

Cymbilanius lineatus, SCL., 1854, p. 112 (Quijos); 1858a, p. 65 (Napo); ALLEN, p. 74 (Napo); S. & F., 1899b, p. 27 (Valle del Rio Santiago).

Rio Suno, 8♂, 4♀; below San José, 4♂, 1♀.

RANGE.—Tropical Zone: the species, Amazonia to Nicaragua and western Ecuador; the race, lower Amazon to eastern Ecuador, eastern Colombia and Venezuela.

Ecuadorean specimens appear to be fairly typical of this race. Females vary in the intensity of the ochraceous bars above and in the width of these bars on the rectrices.

(1855) *Cymbilaimus lineatus fasciatus* (Ridgw.)

Cymbilanius lineatus fasciatus RIDGW., Proc. U. S. N. M., VI, 1884, p. 404 (Los Sabalos, Nic.).

Cymbilanius lineatus, HART., 1898, p. 492 (Cachaví).

Cymbilanius lineatus subsp. nov. ?, HART., Nov. Zoöl., 1917, p. 495 (crit.).

RANGE.—Tropical Zone west of the Andes from northwestern Ecuador north to Nicaragua.

Hartert (*loc. cit.*) states that males from western Ecuador have the white bars below even wider than in *intermedius* or *fasciatus* but are nearer the latter. He has only one female from Ecuador and awaits the receipt of further material before expressing a definite opinion on the status of the Ecuadorean bird. We have no Ecuadorean specimens, but a female from Barbacoas, southwestern Colombia, is evidently referable to *fasciatus*. (See also Hellm., Field Mus. Pub. No. 283, p. 40.)

(1858) *Taraba unduliger* (Pelz.)

Thamnophilus unduliger PELZ., Orn. Bras., 1869, p. 75 (Maribitãnas, Brazil); SCL., Cat. Bds. B. M., XV, 1890, p. 182 (Rio Copotaza—Buckley).

Rio Suno, 1♂, 1♀.

RANGE.—Tropical Zone; eastern Peru to southeastern Colombia, east to Brazil.

I have no material for comparison.

¹ See Cory and Hellmayr's recent work on this family, forming Part III of the "Catalogue of Birds of the Americas" (Field Mus. Pub. No. 223) which I have here followed.

(1862) **Taraba transandeanana transandeanana** (Scl.)

Thamnophilus transandeanus SCL., P. Z. S., 1855, p. 18 (Guayaquil); 1860d, p. 278 (Babahoyo); 1860e, p. 294 (Esmeraldas); TACZ., 1877, p. 324 (Tumbez); B. & T., 1883, p. 562 (Chimbo); HART., 1898, p. 491 (Chimbo); S. & F., 1899b, p. 27 (Vinces; Rio Peripa).

Bucay (Rhoads).

Esmeraldas, 2♂, 5♀; Rio Coaque 1♂; Chone, 1♂; Rio de Oro, 1♀; Mindo, 1♂; Naranjo, 3♂, 3♀; Bucay, 1♂; Santa Rosa, 2♂, 1♀; Zaruma, 1♂; Alamor, 1♀; Guainche, 1♂, 1♀.

RANGE.—Tropical Zone: the species, eastern Peru to southern Mexico; the race, from northwestern Peru to southern Mexico.

Males vary in the extent of the whitish tip to the lower tail-coverts; females, in the intensity of the color of the upperparts; but, on the whole, the series is fairly constant

(1864) **Taraba transandeanana melanura** (Gould)

Thamnophilus melanurus GOULD, P. Z. S., 1855, p. 69 (River Ucayali); SCL. 1858a, p. 65 (Napo); GOODF., 1902, p. 63 (Archidona).

Thamnophilus melanurus debilis BERL. & STOLZ., P. Z. S., 1896, p. 379 (La Merced, Peru).

Zamora, 3♂; below San José, 1♂.

RANGE.—Tropical Zone; eastern Ecuador to southeastern Peru and the Purus.

I can detect no racial differences between males from Ecuador and Peru (Tulumayo, 3, Candamo, 3, Astillero, 1). The Tulumayo birds are essentially topotypical of *debilis* Berl. & Stolz., and I share Hellmayr's¹ opinion that this form is not valid.

(1870) **Thamnophilus unicolor unicolor** (Scl.)

Dysithamnus unicolor SCL., P. Z. S., 1859, p. 141 (Pallatanga, Ec.); 1860c, p. 89 (Nanegal); 1860f, p. 429 (Pallatanga); GOODF., 1902, p. 64 (Gualea; San Nicolas), ♂ correct, ♀ = *D. capitalis*, fide HELLM. in litt.; HART., 1902, p. 611 (Paramba).

Thamnophilus unicolor, B. & T., 1884, p. 301 (Cayandeled; Surupata).

Mindo, 1♂, 2♀; Chimbo, 1♂; Rios Chimbo and Coco, 2♀; El Chiral, 4♂, 4♀; near Zaruma, 4♂, 4♀; Salvias, 1♂, 1♀; San Bartolo, 1♀; Las Piñas, 1♀.

RANGE.—Subtropical Zone; western Ecuador.

This species is evidently far more common in western than in eastern Ecuador.

¹ Arch. für Naturg., 85, 1919, p. 82.

(1870a) *Thamnophilus unicolor grandior* Hellm.

Thamnophilus unicolor grandior HELLM., Field Mus. Pub. No. 283, 1924, p. 84.

Thamnophilus unicolor longicaudus CHAPM., (nec Vieill.) Amer. Mus. Novit., No. 86, 1923, p. 1 (Barro Blanco, Antioquia, Col.).

Zamora, 1 ♂.

Subspecific Characters.—Similar to *Thamnophilus unicolor unicolor* (Scl.) of the Subtropical Zone of western Ecuador, but wing averaging longer, tail disproportionately longer, outer tail-feathers narrowly tipped with white.

RANGE.—Subtropical Zone of Colombia (except Santa Marta group) south to at least Zamora, eastern Ecuador.

Comments on the relationship of the two forms of this species will be found under the above citations. Since this race was described we have received five additional examples of it from Chaupe, Peru, in the Subtropical Zone between Huancabamba and San Ignacio. The tail in these specimens measures from 65 to 68 mm.

(1871) *Thamnophilus æthiops æthiops* Scl.

Thamnophilus æthiops SCL., P. Z. S., 1858, p. 65 (Rio Napo); 1858b, p. 457 (Zamora); 1858d, p. 146 (Rio Napo); S. & F., 1899b, p. 27 (Valle de Zamora); GOODF., 1902, p. 64 (Rio Coca).

Eastern Ecuador, 1 ♂; Sarayacu, 1 ♀; Rio Suno, 1 ♂; below San José, 2 ♂, 2 ♀.

RANGE.—The species, Amazonia to western Colombia; the race, eastern Ecuador.

Represented in western Colombia (and probably also western Ecuador) by *T. æthiops occidentalis* Chapm. (Amer. Mus. Novit., No. 86, 1923, p. 2).

(1885) *Thamnophilus punctatus atrinucha* Salv. & Godm.

Thamnophilus atrinucha SALV. & GODM., Biol. Cent. Am., Aves, II, 1892, p. 200 (Cen. Am.; Hellm. "fixes" Panama); S. & F., 1899b, p. 27 (Rio Peripa; Vines).

Thamnophilus nævius, SCL., 1860d, p. 278 (Babahoyo); 1860e, p. 294 (Esmeraldas); B. & T., 1883, p. 564 (Chimbo).

Erionotus punctatus magnirostris DOMAN. & STOLZ., Disc. Biol. Arch. Soc. Sci. Varsov., I, 1922, Sep. p. 1 (Palmar); see HELLM., Field Mus. Pub. No. 283, 1924, p. 90.

Bucay (Rhoads).

Esmeraldas, 10 ♂, 3 ♀; Rio de Oro, Manaví, 3 ♂, 2 ♀; Naranjo, 2 ♂, 2 ♀; Bucay, 4 ♂, 2 ♀; Chimbo, 2 ♂, 1 ♀; Rio Jubones, 1 ♂; La Chonta, 1 ♂, 1 ♀; Santa Rosa, 3 ♂, 1 ♀; Las Piñas, 1 ♂.

RANGE.—Tropical Zone: the species, Amazonia and Cayenne to British Honduras; the race, from southwestern Ecuador (chiefly Colombian-Pacific Fauna) north to British Honduras (excluding Gorgona Is.).

Ecuadorean specimens agree with a series of nine males and six females from eastern Panama to Nicaragua. Not one of our thirteen Ecuadorean females is as richly colored as a female of *gorgonæ* from Gorgona Island.

(1915a) *Thamnophilus zarumæ* Chapm.

Thamnophilus zarumæ CHAPM., Amer. Mus. Novit., No. 18, 1921, p. 6 (Zaruma, Ec.).

Zaruma, 2♂, 4♀; Portovelo, 6♂, 4♀; Rio Pindo, 1♀; Punta Santa Ana, 1♂, 2♀; Celica, 1♀; Alamor, 5♂, 3♀; Guainche, 1♂, 1♀; Las Piñas, 1♂, 4♀; Ce-bollal, 2♀; Lunamá, 1♂. Peru: Milagros, 1♂; Palambla, 6♂.

Specific Characters.—Similar to *T. radiatus radiatus* Vieill., but smaller, the male above and below more narrowly barred, the bars obsolete on the nape; forehead with more white, lateral crest feathers with white markings; abdomen and flanks buffy and comparatively unbarred; inner webs of all but one outer and two or three inner wing-quills with even margins instead of spots; under wing-coverts buffy. Female less clearly rufous above than the female of *radiatus*, the nuchal region grayish olivaceous; the sides of the head, especially posteriorly, with little or no buffy wash; the underparts much paler.

RANGE.—Subtropical Zone of the West Andes from Zaruma, Ec., south to Palambla, Peru. (Fig. 15, p. 92.)

The discovery of a representative of the *T. radiatus* group on the Pacific coast of southwestern Ecuador is of exceptional faunal interest. No other form of this group is known from either western Ecuador or western Colombia, and the species here described falls into the group of Marañon origin. The new bird also adds one more species to the list of those restricted to southwestern Ecuador and the immediately contiguous part of Peru.

The abundance and nature of my material proves beyond question that the characters which distinguish this proposed new form are not attributable to immaturity, and the characters themselves are obviously of specific value. This species shows no evidence of intergradation with its geographical nearest ally, *subradiatus* of the Marañon Valley, indeed, resembles it less than it does *albicans* of the Magdalena Valley.

(1917a) *Thamnophilus tenuipunctatus tenuifasciatus* Lawr.

Thamnophilus tenuifasciatus LAW., Ann. Lyc. Nat. Hist. N. Y., VIII, 1867, p. 468 (Napo, Ec.); CHAPM., Bull. A. M. N. H., XXXVI, 1917, p. 368 (crit.).

Thamnophilus doliatus, SCL., 1858b, p. 457 (Zamora—Hellm. *in litt.*).

Thamnophilus tenuipunctatus, B. & T., 1885, p. 99 (Mapoto).

Thamnophilus puncticeps, SCL., Cat. Bds. B. M., XV, 1890, p. 212 (Sarayacu sp. only).

? *Thamnophilus berlepschi*, S. & F., 1899b, p. 28 (Gualaquiza; Valle de Zamora).

Zamora, 4♂, 2♀; Macas region, 3♂; below Oyacachi, 1♂ im.; Napo, 1♂ (the type); Rio Suno, 1♂, 2♀; below San José, 4♂, 1♀. Peru, Marañon Valley: Jaen, 2♂; Perico, 2♂; Huaranda, 1♂; Lomo Santo, 3♂, 1♀.

RANGE.—The species, eastern base of the Andes in Colombia and Ecuador; the race, Ecuador.

I have already called attention to the differences distinguishing this subspecies from *tenuepunctatus*. A young male has the crown as in the adult, the tail and wing-quills as in the female, but with the greater coverts black, barred with white and ochraceous, the primary coverts with subterminal black bars. The back is rufous barred with black the underparts white tinged with ochraceous, the throat streaked, the remainder barred with black. All males have the forehead marked with white, but in one from Zamora the entire crown is spotted.

No form of the *radiatus* group has been recorded from southern Ecuador, but we have specimens of *subradiatus* (as well as of the present species) from Jaen in the Marañon Valley, whence it has also been recorded by Bangs and Noble (cf. Hellm., Field Mus. Pub. No. 223, p. 68).

(1947a) ***Thamnophilus schistaceus hellmayri* (Cory)**

Dysithamnus schistaceus hellmayri CORY, Field Mus. Pub. No. 190, 1916, p. 338 (Rioja, Peru).

Zamora, 1♂, 1♀. Peru: Pomará, Marañon, 5♂.

RANGE.—Tropical Zone: the species, Bolivia to Colombia and the lower Amazon; the race, northeastern Peru and southeastern Ecuador.

A male from Zamora agrees with four of five males from Pomará, on the Marañon just above the Pongo de Manseriche, in having the feathers of the crown with blackish centers margined with gray. The fifth Pomará specimen has the crown black, and more nearly resembles *capitalis*, demonstrating the intergradation of that race with *hellmayri*.

(1951) ***Thamnophilus schistaceus capitalis* Scl.**

Thamnophilus capitalis SCL., P. Z. S., 1858, p. 65 (Napo, Ec.); 1858d, p. 147 (Rio Napo); S. & F., 1899b, p. 27 (Valle de Zamora; Valle del Rio Santiago).

Dysithamnus schistaceus, SCL., 1858a, p. 66 (Napo); GOODF., 1902, p. 64 (Archidona). (Fide Hellm. in litt.).

Rio Suno, 7♂, 3♀; below San José, 3♂, 2♀.

RANGE.—Tropical Zone: northeastern Ecuador and southeastern Colombia.

The cap is wholly black in the adult male of this race. Possibly represented in the Guianas by *T. murinus*.

(1904) *Sakesphorus bernardi bernardi* (Less.)

Thamnophilus bernardi LESS., Echo du Monde Savant, II, No. 15, 1844, p. 348, ("Guayaquil"); Œuvres Compl. Buff., ed. Lévêque, XX, 1847, p. 299 (Guayaquil).

Thamnophilus albinuchalis SCL., P. Z. S., 1855, p. 18 ("Guayaquil" and Puna Is.); LAW., 1869, p. 236 (Puna Is.); TACZ., 1877, p. 324 (Tumbez); S. & F., 1899b, p. 28 (Savana de Guayaquil).

Hypolophus bernardi bernardi, HELLM., Verh. der Orn. Gesell. Bayern, XIII, 1917, p. 189 (Guayaquil; Puna; Tumbez).

Maná, 3♂, 1♀; Machalilla, 1♂, 2♀; Santa Elena, 1♀; Chongoncito, 3♂, 4♀; Guayaquil, 3♂, 1♀; Duran, 1♂; Daule, 3♂; Puna Is., 6♂, 3♀.

RANGE.—Tropical Zone: the species, valley of the Marañon, Prov. La Libertad, Peru, north to Manaví, Ec.; the race, Equatorial Arid Fauna from Manaví to Puna Is.

A common species which apparently has reached the Pacific coast from the Marañon Valley where, possibly, it may represent *S. canadensis*.

(1904a) *Sakesphorus bernardi piuræ* (Chapm.)

Thamnophilus bernardi piuræ CHAPM., Amer. Mus. Novit., No. 86, p. 3 (Samate, Piura, Peru).

Santa Rosa, 2♂, 3♀; Lunama, 1♂, 1♀; Casanga, 1♂, 1♀.

Subspecific Characters.—An intermediate between *Thamnophilus bernardi cajamarcae* Hellm., of the Pacific slope of the Provinces of Cajamarca and La Libertad, Peru, and *T. bernardi bernardi* Less. of western Ecuador; nearer the former but averaging smaller, with all the brown areas constantly and pronouncedly paler; the male with the upperparts between Brussels-brown and raw-umber, instead of deep brownish auburn; the female deep Sudan-brown, rather than bright auburn above, the rectrices without indistinct, subterminal black markings, present in most of our specimens of *cajamarcae*, and with less suggestion of blackish markings on the breast; averaging larger than *T. bernardi bernardi*, the male with the back brighter brown, the front and sides of the throat with more whitish markings; the female brighter, deeper brown above, the hind-head usually more or less black, instead of largely or wholly Sanford's brown.

RANGE.—Tropical Zone; southwestern Ecuador, Provinces Tumbez and Piura, Peru (Valley of Marañon?)¹.

Southwestern Ecuadorean specimens are intermediate between *piuræ* and *bernardi* but, on the whole, are nearer the former. The third and remaining form of the group, *S. bernardi cajamarcae*, occupies the Pacific coast and lower western Andean slopes in the Provinces of La Libertad and Cajamarca.

¹ See also Hellm., Field Mus. Pub. No. 283, 1924, p. 58; footnote.

(1928) ***Thamnistes anabatinus æquatorialis* Scl.**

Thamnistes æquatorialis SCL., P. Z. S., 1861, p. 380 (Rio Napo); Cat. Bds. B. M. XV, 1890, p. 216 (Rio Napo; Sarayacu specimens only).

Rio Suno, 3 ♂, 2 ♀; below San José, 3 ♂, 4 ♀.

RANGE.—Tropical Zone; eastern Ecuador and southeastern Colombia.

Sclater based this species on a specimen from Napo and one from Nanegal. The former, as first mentioned, will stand as the type of the species, while the latter is doubtless referable to *T. anabatinus intermedius*.

(1928a) ***Thamnistes anabatinus intermedius* Chapm.**

Thamnistes anabatinus intermedius CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 614 (Barbacocas, Col.).

Thamnophilus æquatorialis, SCL., Cat. Bds. B. M., XV, 1890, p. 216 (Nanegal specimens).

Thamnistes anabatinus æquatorialis, HART., 1902, p. 611 (Rio Verde; Lita).

La Chonta, 1 ♂ ?, 1 ♀; Las Piñas, 1 ♀.

RANGE.—Tropical Zone: the species, central Peru and southwestern Ecuador to eastern Mexico; the race, western Ecuador and western Colombia.

Specimens from southwestern Ecuador vary in intensity of coloration and in the size of the bill, but the type from Barbacoas, southwestern Colombia, falls within the range of variation.

(1930a) ***Pygiptila stellaris maculipennis* (Scl.)**

Thamnophilus maculipennis SCL., Edinb. Phil. Journ. N. S., I, 1854, p. 247 (Quijos, Ec.); 1858a, p. 65 (Napo).

Thamnophilus stellaris, SCL., 1854, p. 112 (Quijos).

Rio Suno, 4 ♂, 5 ♀; below San José, 3 ♂.

RANGE.—Tropical Zone: the species, Amazonia; the race, east Ecuador (upper Amazon (?) to the lower Orinoco).

In twelve specimens from Ecuador, and seventeen from Mt. Duida on the upper Orinoco, and La Union, on the lower Orinoco, the male has more black on the back, reaching indeed to the rump; and the hindhead and foreback in the female are grayer, the wings darker, the tertials with more gray, than in specimens of *stellaris stellaris* (four males and two females) from the lower Amazon and Gy-Paraná.

(1932) ***Neotantes niger* (Pelz.)**

Xenops niger PELZ., Sitz. Ak. Wien, XXXIV, 1859, p. 111 (Marabitañas).

Neotantes niger, SCL., Cat. Bds. B. M., XV, 1890, p. 219 (Sarayacu—Buckley).

Rio Suno, 4 ♂, 1 ♀.

RANGE.—Upper Amazonia; Rio Negro to eastern Ecuador.

I have seen only Ecuadorean specimens.

(1933) *Clytoctantes alixi* Elliot

Clytoctantes alixi ELLIOT, P. Z. S., 1870, p. 242, pl. xx (Rio Napo).

"Equateur," 1 ♂ ad (type), 1 ♂ im.

Although this species was described from the "Rio Napo," the two specimens on which it was based are labelled (by Verreaux frères) simply "Equateur." This species has since been found only in Colombia, in the Bogotá region, and at Puerto Valdivia in the Tropical Zone on the lower Cauca River. There is, therefore, no satisfactory evidence of its occurrence in eastern Ecuador, nor, indeed, in any other part of that country.

(1935a) *Dysithamnus mentalis æquatorialis* Todd

Dysithamnus mentalis æquatorialis TODD, Bull. A. M. N. H., XXXV, 1916, p. 539 (Zaruma, Ec.); Chapman, Am. Mus. Novit. No. 205, 1925, pp. 5, 6 (Crit.).

Dysithamnus semicinereus, SCL., 1860d, p. 278 (Babahoyo); B. & T., 1883, p. 564 (Chimbo); HART., 1898, p. 492 (Chimbo); S. & F., 1899b, p. 28 (Vinces; Balzar; Rio Peripa); GOODF., 1902, p. 64 (lower w. Pichincha).

Dysithamnus olivaceus, SCL., 1860c, p. 89 (Nanegal); MEN., 1911, p. 32 (Gualea).

Dysithamnus mentalis, SCL., 1860a, p. 67 (Pallatanga).

Esmeraldas, 2 ♂; Rio de Oro, 4 ♂; Chone, 2 ♀; Cerro Manglar Alto, 3 ♂; Naranjo, 1; Chongoncito, 1 ♂, 3 ♀; Chongon Hills, 3 ♂, 1 ♀; Chimbo-Coco, 2 ♂, 2 ♀; Santa Rosa, 3 ♂, 2 ♀; La Chonta, 1 ♂; La Puente, 1 ♂; El Chiral, 2 ♂; Portovelo, 4 ♂; above Zaruma, 3 ♂, 1 ♀; Punta Santa Ana, 4 ♂, 1 ♀; Salvias, 2 ♂, 2 ♀; Guainche, 3 ♂; Rio Pullango, 2 ♂; Cebollal, 3 ♂, 2 ♀; Las Piñas, 1 ♂; Alamor, 8 ♂, 6 ♀. Peru: Milagros, 1 ♂, 1 ♀.

RANGE.—Tropical and Subtropical Zones of western Ecuador to northwestern Peru.

This form more nearly resembles the east Ecuadorean *D. m. napensis* than it does the west Colombian *D. m. extremus*, a fact which suggests that it is of west coast origin *via* the Marañon route. If this theory be true, we have a partial explanation of the bird's occurrence in two zones in western Ecuador, while in western Colombia it is restricted to the Subtropical. Of Tropical distribution in Amazonia, it also ascends to the Subtropical, and, on reaching the west Andean slope, may have descended to the Tropical. Doubtless its range has also been affected by the Humboldt Current. Specimens from the Tropical Zone of

northwestern Ecuador are smaller with shorter wings and, particularly, tail, than those of southwestern Ecuador. Males from Esmeraldas and Manaví measure, wing 56 to 61 mm.; tail 33 to 38 mm.; females, wing 56 to 57 mm., tail 34 mm. Males from Zaruma and southwestern Ecuador measure, wing 59 to 63 mm.; tail 38 to 40 mm.

(1935b) *Dysithamnus mentalis napensis* Chapm.

Dysithamnus mentalis napensis CHAPM., Am. Mus. Novit., No. 205, 1925, p. 4 (below San José de Sumaco).

Dysithamnus semicinctus, SCL., 1858, p. 66 (Napo).

Dysithamnus mentalis olivaceus, HELLM., Field Mus. Pub. No. 223, 1924, p. 119 (part—east Ecuador).

Zamora, 1 ♂, 1 ♀; below San José, 5 ♂, 1 ♀; Rio Suno, 2 ♂, 2 ♀.

Subspecific Characters.—Most nearly resembling *D. m. extremus* Todd, of western Colombia, but the male averaging darker below with less white on the abdomen, the flanks and rump always washed with olivaceous; female like that of *extremus*.

The status of this race is discussed at length in the American Museum publication above referred to.

(1943) *Dysithamnus puncticeps flemmingi* Hart.

Dysithamnus flemmingi HART., Bull. B. O. C., XI, 1900, p. 38 (Rio Verde, Ec.); HART., 1902, p. 611 (Rio Verde; Ventana; Bulün; Lita; Cachyacu); MEN., 1911, p. 32 (Santo Domingo).

Cerro Pato de Pajaro, 1 ♂.

RANGE.—Tropical Zone: the species, northwestern Ecuador to Costa Rica; the race, northwestern Ecuador and southwestern Colombia.

We have only one Ecuadorean specimen, but a small series from Barbacoas is doubtless typical. Specimens from northwestern Colombia indicate the intergradation of this form with the more northern *puncticeps puncticeps*. Through apparent parallelism the head markings of *flemmingi* are repeated in *D. striaticeps* of Costa Rica and Nicaragua.

(1944) *Dysithamnus leucostictus leucostictus* Scl.

Dysithamnus leucostictus SCL., P. Z. S., 1858, p. 66, pl. cxi (Rio Napo, Ec.; female); 1858d, p. 147 (Rio Napo); B. & T., 1885, p. 99 (Machay; first description of male); GOODF., 1902, p. 64 (Baeza).

Sabanilla, Rio Zamora, 4 ♂, 1 ♂ juv., 4 ♀, 1 ♀ juv.; lower Sumaco, 8 ♂, 1 ♂ juv., 9 ♀; Guayaba, Rio Zamora, 1 ♀; below Oyacachi, 1 ♂, 1 ♀.

RANGE.—Eastern Subtropical Zone: the species, Ecuador to Venezuela; the race, Ecuador and Colombia.

This is a rare bird in collections, but apparently not uncommon in nature. It was described from a female, nearly thirty years elapsing before the male was made known. Further proof of the specific identity of the birds described by Selater and Berlepsch and Taczanowski is supplied by Hartert (Nov. Zoöl., I, 1894, pl. xv, fig. 1) who figures an immature male of a Venezuelan race of *leucostictus* under the name *D. tucuyensis*. An adult male and female of this form from El Limon (5,000 ft.), Venezuela, differ from Ecuadorean specimens as follows: Slightly larger than *D. l. leucostictus* Sel. of the eastern Subtropical Zone of Ecuador and Colombia; the male with the back olivaceous-slate, not concolor with the slaty black head; the abdominal region and outer margins of the wing-quills more olivaceous; female with the margins to the feathers of the throat and breast narrower, paler, and less sharply contrasted with the whiter centers of the feathers; the flanks more ochraceous.

A specimen of each sex in juvenal plumage is almost uniform dark brown, the wings and tail as in the adult female, while on the throat and sides there are several white, gray-margined, feathers similar to those of the adult female.

A female from above Villavicencio, eastern Colombia, is referable to true *leucostictus*, indicating that *leucostictus tucuyensis* is probably restricted to the Caribbean slope.

There is a strikingly close resemblance between males of true *leucostictus* and the type of *D. plumbeus* Wied. The latter is not fully adult, the tip of the tail and under tail-coverts being brownish. The relationships of these two forms would doubtless be shown by comparison of females. I have not seen a specimen of the female of *plumbeus* but Hellmayr's description of it does not indicate close resemblance to *leucostictus*.¹

Measurements

		Wing mm.	Tail mm.
El Limon, Ven.	♂	74	53
Sabanilla, Rio Zamora, Ec.	♂	72	48.5
Sabanilla, Rio Zamora, Ec.	♂	69	44
Sabanilla, Rio Zamora, Ec.	♂	71	46.5
El Limon, Ven.	♀	71.5	48.5
Sabanilla, Rio Zamora, Ec.	♀	66	44
Sabanilla, Rio Zamora, Ec.	♀	66	44
Sabanilla, Rio Zamora, Ec.	♀	68	45

¹ Hellmayr (Field Mus. Pub., No. 223, 1924, p. 127) treats these forms as conspecific, but in view of their apparently widely separated ranges I should prefer to see their intergradation proven before adopting this course.

(1944a) **Dysithamnus punctitectus** *Chapm.*

Dysithamnus punctitectus CHAPM., Amer. Mus. Novit., No. 123, 1924, p. 2 (Subtropical Zone, below Oyacachi, e. Ec.).

Below Oyacachi, 2 ♂, 1 ♀; lower Sumaco, 1 ♂.

RANGE.—Subtropical Zone; eastern Ecuador.

Specific Characters.—Male resembling the male of *D. leucostictus leucostictus* Scl., of the Subtropical Zone of eastern Ecuador and eastern Colombia, but darker, less plumbeous above and below, the throat not black, the underparts without white shaft-streaks. Female wholly unlike the female of *leucostictus*; nearly uniform deep neutral gray below; crown auburn; back, Prout's brown; much larger than *leucostictus*.

(1953) **Dysithamnus ardesiacus ardesiacus** *Scl. & Salv.*

Dysithamnus ardesiacus SCL. & SALV., P. Z. S., 1867, p. 756 (Rio Napo); S. & F., 1899b, p. 29 (Valle del Rio Santiago).

Rio Suno, 2 ♂.

RANGE.—Tropical Zone: the species, Amazonia; the race, eastern Ecuador and southeastern Colombia.

(1959) **Thamnomanes cæsius glaucus** *Cab.*

Thamnomanes glaucus CAB., Arch. für Naturg., 1847, p. 230 (Cayenne); SCL., 1858a, p. 67 (Napo); GOODF., 1902, p. 64 (Rio Coco).

Rio Suno, 8 ♂, 4 ♀; below San José, 3 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, Guianas to southeastern Brazil and upper Amazonia; the race, Guianas to eastern Ecuador.

The males agree with British Guianan specimens; two Rio Suno females have a white dorsal patch, and in intensity of color resemble Guianan birds; the remaining two are much paler below, more olive above, and lack the dorsal patch; while the fifth is intermediate, indicating that this variation is due to age.

(1961) **Myrmotherula brachyura** (*Herm.*)

Muscicapa brachyura HERM., Tab. Aff. Anim., 1783, p. 229 (Cayenne).

Formicivora pygmæa, SCL., 1858a, p. 67 (Napo).

Myrmotherula pygmæa, S. & F., 1899b, p. 29 (Valle de Zamora).

Rio Suno, 6 ♂, 5 ♀; below San José, 2 ♂, 3 ♀.

RANGE.—Amazonia to Panama; not recorded from western Ecuador.

These birds agree with Guianan specimens.

(1963) *Myrmotherula surinamensis pacifica* Hellm.

Myrmotherula surinamensis pacifica HELLM., P. Z. S., 1911, p. 1159 (type from Buenaventura, Col.).

Myrmotherula surinamensis, B. & T., 1883, p. 564 (Chimbo); S. & F., 1899b, p. 29 (Rio Peripa spp. only); GOODF., 1902, p. 64 (San Nicolas; Gualea); MEN., 1911, p. 33 (Santo Domingo).

Myrmotherula surinamensis (subsp.), HART., 1902, p. 612 (San Javier; Pambilar). Bucay (Rhoads).

Esmeraldas, 3 ♂, 2 ♀; Rio de Oro, 2 ♀.

RANGE.—Tropical Zone: the species, Amazonia to Veragua; the race, western Ecuador to Veragua.

In the practical absence of the white dorsal patch this form resembles *M. longicauda*.

(1966) *Myrmotherula longicauda longicauda* Berl. & Stolz.

Myrmotherula longicauda BERL. & STOLZ., Ibis, 1894, p. 394 (Chontabamba, Vitoc Valley, Peru).

? *Myrmotherula surinamensis*, SCL., P. Z. S., 1858, p. 234 (Rio Napo); S. & F., 1899b, p. 29 (2 ♂, Gualaquiza).

Zamora, 2 ♂; Macas, 1 ♂.

RANGE.—Chiefly Subtropical Zone: the species, eastern Ecuador to eastern Bolivia; the race, eastern Ecuador to central eastern Peru (?).

Three males agree closely with five from Tulumayo (4,000 ft.) in the Vitoc Valley, Peru, but the identification of the eastern Ecuadorean bird cannot be considered as final until females have been examined.¹

From *M. surinamensis surinamensis* this form differs in its longer, much more graduated tail, greater amount of white in the rectrices (the outer vane of the outer rectrix being wholly or largely white, the white tip 7 to 8 mm. in width). The male lacks a concealed white dorsal patch and has the throat and flanks white, unstreaked. The female (of which we have three from Tulumayo) resembles the male but has the white areas tinged with buff, and the streaks on the breast are not quite so numerous or pronounced. It is, therefore, quite unlike the female of *surinamensis*. In view of these marked differences I feel that while *longicauda* is evidently a representative of *surinamensis* the available evidence points to its specific distinctness from that bird.

¹ Hellmayr (Field Mus. Pub. No. 223, 1924, p. 138) records *M. l. australis* from Moyabamba and hence refers the Ecuadorean bird to that race. The case is most puzzling.

(1972) ***Myrmotherula fulviventris* Lawr.**

Myrmotherula fulviventris LAW., Ann. Lyc. Nat. Hist. N. Y., VII, 1862, p. 468 (Panama); S. & F., 1899b, p. 29 (Rio Peripa).

Myrmotherula viduata, HART., 1898, p. 492 (Cachaví).

Myrmotherula fulviventris viduata, HART., 1902, p. 612 (Cachaví).
Bucay (Rhoads).

Esmeraldas, 2 ♂, 2 ♀; Rio de Oro, 3 ♂, 1 ♀, 1 ?; Bucay, 1 ♂, 2 ♀; Santa Rosa, 1 ♀

RANGE.—Tropical Zone; western Ecuador to Honduras.

After further study of the status of this species, including the examination of additional material from both Ecuador and Panama, I see no reason to alter the view expressed in my 'Distribution of Bird Life in Colombia' (p. 374) to the effect that the species is not racially divisible. I would, therefore, synonymize the since-described Antioquian form¹ (of which I have five specimens) as well as the one described from Ecuador. All the characters ascribed to these forms are covered by the range of variation in our series from Ecuador.

(1973) ***Myrmotherula leucophthalma spodionota* Scl. & Salv.**

Myrmotherula spodionota SCL. & SALV., P. Z. S., 1880, p. 159 (Sarayacu).

Rio Suno, 5 ♂, 2 ♀; Zamora, 1 ♀.

RANGE.—Tropical Zone: the species, eastern Ecuador to east central Peru; the race, eastern Ecuador.

Males have the breast gray, paler than the back, and thus agree with the description rather than with the key in the 'Catalogue of Birds.' The female, apparently before-undescribed, is olive-brown above, the tail and wing-quills browner; the underparts tawny ochraceous with darker borders to the feathers of the breast. There is, therefore, no approach to *sororia* Berl. & Stolz. (of which we have a male from La Merced) in which the female is much like the male.

(1976) ***Myrmotherula erythrura* Scl.**

Myrmotherula erythrura SCL., Cat. Bds. B. M., XV, 1890, p. 236 (Rio Napo); S. & F., 1899b, p. 29 (Valle del Rio Santiago).

Napo, 1 ♀; Rio Suno, 6 ♂, 3 ♀; below San José, 3 ♂, 2 ♀.

RANGE.—Tropical Zone, eastern Ecuador and Peru.

Three males have an indication (in one pronounced) of black on the throat, suggesting that this species and *M. hæmatonota* are mutually representative.

¹ *Rhopias fulviventris salmoni* Chubb, Ann. & Mag. Nat. Hist., 1918, p. 124 (Remedios).

(1977a) **Myrmotherula ornata saturata** (Chapm.)

Myrmopagis ornata saturata CHAPM., Amer. Mus. Novit., No. 96, 1923, p. 9 (Rio Suno).

Hypocnemis ornata, SCL., 1858a, p. 67 (Napo).

Myrmotherula ornata, S. & F., 1899b, p. 29 (Valle del Zamora).

Zamora, 2 ♂; Rio Suno, 5 ♂, 6 ♀; "Napo," 2 ♀; below San José, 2 ♂, 3 ♀.

Subspecific Characters.—Similar to *Myrmotherula ornata ornata* (Scl.) of the Bogotá region but more deeply colored; the rump in both sexes chestnut rather than Sanford's brown; male with the gray areas darker, the flanks less washed with olivaceous; female with the throat as in *ornata* but elsewhere slightly darker in general color.

RANGE.—Tropical Zone: the species, eastern Colombia and eastern Ecuador; the race, eastern Ecuador.

This is simply a richly colored form of *M. ornata*, the product, doubtless, of a more humid environment. The rump-patch is larger than in *hoffmanni* from which, in addition, the male of *saturata* differs much as it does from true *ornata*. The female of *hoffmanni* is said to have the throat "uniform bright ochraceous" (Hellmayr, 1906, Bull. B. O. C., XVI, p. 84), which induces me to believe that, in spite of the close resemblance between the males, it is specifically distinct from *ornata*.

(1980) **Myrmotherula hauxwelli hauxwelli** (Scl.)

Formicivora hauxwelli SCL., P. Z. S., 1857, p. 131, pl. 126 fig. 2 (Chamicuros); 1858a, p. 67 (Napo).

Rio Suno, 2 ♂, 5 ♀.

RANGE.—Tropical Zone: the species, Para to eastern Peru and Colombia; the race, upper Amazonia.

I have no Peruvian specimens.

(1984) **Myrmotherula axillaris melæna** (Scl.)

Formicivora melæna SCL., P. Z. S., 1857, p. 130 (Bogotá).

Zamora, 5 ♂, 1 ♀; Rio Suno, 7 ♂, 7 ♀; below San José, 3 ♂, 2 ♀.

RANGE.—Tropical Zone: the species, eastern Brazil and Bolivia to Honduras; the race, eastern Colombia and eastern Ecuador, Rio Negro, and northeastern Peru.

Of fourteen adult males from southeastern Colombia and eastern Ecuador, ten are dark neutral gray above, while four are nearly as black as any of our western Ecuadorean specimens. Females from the same region have the upperparts and tail more rufescent than in females from west of the Andes. This form, therefore, while variable, is intermediate

between true *axillaris* and *albigula*. As stated below, however, Sclater's type should be examined before the name *melæna* can definitely be applied to it.

(1984a) ***Myrmotherula axillaris albigula* (Lawr.)**

Myrmotherula albigula LAWR., Ann. Lyc. Nat. Hist. N. Y., VIII, 1867, p. 131 (Panama R. R. line. Type, ♀, examined).

Myrmotherula melæna, S. & F., 1899b, p. 30 (Rio Peripa).

Esmeraldas, 7 ♂, 3 ♀; Rio de Oro, 5 ♂, 5 ♀.

RANGE.—Tropical Zone; western Ecuador to Honduras.

Seventeen males from western Ecuador and western Colombia have the upperparts coal-black, and agree with an adult topotype from the Canal Zone, but four of ten apparently fully adult males from eastern Panama have the upperparts grayish black as in males from eastern Colombia and eastern Ecuador. Possibly in western Ecuador this character is fully developed and constant, while Panaman birds are intermediate between the eastern Colombian bird (which I assume to be *melæna*) and that of western Colombia and western Ecuador, though in view of this variation the type of *melæna* should be examined. Ecuadorean females average paler below than Panaman birds.

(1985) ***Myrmotherula schisticolor schisticolor* (Lawr.)**

Formicivora schisticolor LAWR., Ann. Lyc. Nat. Hist. N. Y., VIII, 1867, p. 172 (Costa Rica).

Myrmotherula menetriesi, SCL., 1860a, p. 67 (Pallatanga); 1860c, p. 89 (Nanegal); B. & T., 1883, p. 564 (Chimbo); 1884, p. 302 (Surupata); S. & F., 1899b, p. 30 (Rio Peripa); GOODF., 1902, p. 65 (Gualea).

Myrmotherula melæna, GOODF., 1902, p. 64 (Santo Domingo = *M. schisticolor*; *fide* Hellm. *in litt.*).

Bucay (Rhoads).

Esmeraldas, 1 ♀; Rio de Oro, 2 ♂, 5 ♀; Mindo, 1 ♂, 1 ♀; Naranjo, 2 ♂, 1 ♀; Bucay, 1 ♀; Chimbo, 1 ♂, 1 ♀; El Chiral, 2 ♂, 1 ♀; Alamor, 7 ♂, 6 ♀; San Bartolo, 1 ♀.

RANGE.—Tropical and Subtropical Zones: the species, eastern Venezuela to Guatemala, south to Peru; the race, southwestern Ecuador to Guatemala.

Ecuadorean females average more richly colored below than those from Nicaragua, but there is much variation in this respect.

(1985a) ***Myrmotherula schisticolor interior* (Chapm.)**

Myrmopagis schisticolor interior CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 614 (Buena Vista, Col.).

Myrmotherula menetriesi, T. & B., 1885, p. 101 (Machay; Mapoto).

Sabanilla, 1 ♂; below Oyacachi, 1 ♂; lower Sumaco, 5 ♂, 2 ♀.

RANGE.—Subtropical Zone; eastern Colombia, eastern Ecuador, and northeastern Peru.

The females have the back gray as in the type.

(1988a) ***Myrmotherula longipennis zimmeri* Chapm.**

Myrmotherula longipennis zimmeri CHAPM., Am. Mus. Novit., No. 205, 1925, p. 9 (Rio Suno, Ec.).

Rio Suno, 1 ♂, 1 ♀.

Subspecific Characters.—Male, similar to the male of *M. longipennis longipennis* Pelz. of the Rio Negro, but the cheeks finely streaked with silvery. Female quite unlike the female of *M. l. longipennis* or *M. l. paraensis* Todd, the upperparts grayish much as in *M. schisticolor interior*, but the crown gray like the back, the underparts ochraceous-buff, much less tawny than in *interior*; the cheeks, lores, and superciliary like the underparts. ♂, wing 58 mm., tail 29.5 mm., culmen 15.5 mm.; ♀, wing 58 mm., tail 29 mm., culmen 15.5 mm.

RANGE.—Tropical Zone: the species, Guiana to eastern Colombia and eastern Peru; the race, eastern Ecuador and eastern Peru.

(1989a) ***Myrmotherula sunensis* Chapm.**

Myrmotherula sunensis CHAPM., Am. Mus. Novit., No. 205, 1925, p. 8 (Rio Suno, Ec.).

Rio Suno, 5 ♂, 2 ♀; below San José, 1 ♀.

Specific Characters.—Male resembling the male of *Myrmotherula schisticolor interior* Chapm. of the Subtropical Zone of eastern Colombia to eastern Peru, but much smaller; the female more olive above than the female of *interior*; the underparts paler, more buffy, less orange-ochraceous.

RANGE.—Tropical Zone; eastern Ecuador. Known only from the localities above mentioned.

The status of this species is discussed in the publication referred to.

(1933a) ***Myrmotherula menetriesii pallida* Berl. & Hart.**

Myrmotherula cinereiventris pallida BERL. & HART., Nov. Zool., IX, 1902, p. 74 (Nericagua, Rio Orinoco, Ven.).

Myrmotherula cinereiventris, SCL., Cat. Bds. B. M., XV, 1890, p. 244 (Rio Napo; Sarayacu).

Rio Suno, 9 ♂, 5 ♀; below San José, 4 ♂.

RANGE.—Tropical Zone: the species, Guianas to Bolivia; the race, Orinoco to northeastern Peru.

Females are much grayer above than two specimens from the lower and three from the upper Orinoco (Mt. Duida). Two females of what I assume are true *cinereiventris* from British Guiana are nearly uniform olive-brownish above. I see no difference between males from Ecuador and British Guiana.

Hellmayr records a male of this race from Colombia, having a "small black spot" on the foreneck, while we have Bolivian examples of *menetriesii* to which this description applies, indicating intergradation of the forms from these two regions. I therefore follow him in ranking *pallida* as a race of *menetriesii*.

(2006) ***Herpsilochmus rufomarginatus frater* Scl. & Salv.**

Herpsilochmus frater SCL. & SALV., P. Z. S., 1880, p. 159 (Sarayacu, Ec.).

Zamora, 2 ♂, 2 ♀; below San José, 1 ♂, 2 ♀.

RANGE.—Tropical Zone: the species, Brazil to eastern Panama, unknown in western Ecuador; the race, eastern Ecuador, eastern Colombia and Venezuela.

Our specimens are essentially topotypical.

(2007, 2008) ***Herpsilochmus axillaris* (Tsch.)**

Thamnophilus axillaris TSCH., Arch. für Naturg., X, 1844, p. 278 (Peru).

Herpsilochmus axillaris æquatorialis TACZ. & BERL., P. Z. S., 1885, p. 100 (Machay; Mapoto).

Lower Sumaco, 1 ♂.

RANGE.—Subtropical Zone: the species, eastern Peru and eastern Ecuador; the race, eastern Ecuador.

Our single specimen from Ecuador differs from a male from south-eastern Peru only in having no blackish centers to the feathers of the back. In the markings of the crown the two birds are alike. Since the type of *æquatorialis* was said to differ from *axillaris* only in the spotting of the crown, I assume that the Ecuadorean and Peruvian birds are not separable.

(2020) ***Drymophila devillei devillei* Men. & Hellm.**

Drymophila devillei MEN. & HELLM., Bull. Soc. Phil. Paris, VIII, 1906, p. 38 (Pebas, Peru).

Rio Suno, 2 ♂; below San José, 2 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, Bolivia to eastern Ecuador, east to Rio Curuá, Brazil; the race, Bolivia to eastern Ecuador.

Our specimens agree with two from Bolivia (including the type of *D. phantatis* Cherrie). The species has not before been recorded from Ecuador. It appears to be represented in the Subtropical Zone by *D. c. caudata*.

(2021) ***Drymophila caudata caudata* (Scl.)**

Formicivora caudata SCL., P. Z. S., 1854, p. 254, pl. 74 (Bogotá); 1858a, p. 67 (Napo); 1859a, p. 142 (Pallatanga); B. & T., 1884, p. 302 (Cayandeled; Chaguarpata; Surupata); GOODF., 1902, p. 65 (Milligalli; Gualea); MEN., 1911, p. 33 (Gualea).

Drymophila caudata occidentalis DOMAN & STOLZ., Discipl. Biol. Archiv. Soc. Sci. Varsav., I, No. 8, 1922, Sep. p. 2 (Surupaba, w. Ec.).

Mindo, 1 ♂, 1 ♀; Baeza, 1 ♂, 2 ♀; upper Sumaco, 4 ♂, 1 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to Venezuela; the race, eastern Peru, eastern and western Ecuador, Colombia, except Santa Marta.

There is much variation in the extent of black in the tail and of black markings in males of this species, individuals from the same locality having the throat and breast very finely as well as heavily streaked. Taking this fact into consideration, I can find no apparent racial differences in our series of males from Chelpes, eastern Peru¹ (2), Baeza, eastern Ecuador (1), Mindo, western Ecuador (1), Central Andes, Col. (4), and western Andes, Col. (2). Dr. Hellmayr writes that he cannot distinguish specimens from western Ecuador from Colombian examples.

(2026) ***Microrhopias boucardi consobrina* (Scl.)**

Formicivora consobrina SCL., P. Z. S., 1860, p. 279 (Babahoyo, s. w. Ec.); 1860e, p. 294 (Esmeraldas); B. & T., 1883, p. 565 (Chimbo); S. & F., 1899b, p. 30 (Babahoyo; Rio Peripa); GOODF., 1902, p. 65 (San Nicolas; Gualea); MEN., 1911, p. 34 (Santo Domingo).

Bucay (Rhoads).

Esmeraldas, 2 ♂, 1 ♀; Rio de Oro, 6 ♂, 3 ♀; Chimbo, 2 ♂, 1 ♀; Babahoyo, 1 ♂.

RANGE.—Tropical Zone: the species, Bolivia to southeastern Mexico; the race, western Ecuador to eastern Panama.

Females from eastern Panama average paler below but the difference is slight and inconstant.

(2028) ***Microrhopias quixensis* (Corn.)**

Thamnophilus quixensis CORN., Vert. Syn., 1849, p. 12, (Quixos).

Pyriglena rufiventris, SCL., 1854, p. 112 (Quijos); 1858a, p. 67 (Napo).

Pyriglena quixensis, SCL., 1854, p. 112 (Quijos); 1858a, p. 66 (Napo).

¹ *Drymophila caudata peruviana* Doman. & Stolz.

'Ecuador,' 1 ♀; Rio Suno, 3 ♂, 7 ♀; below San José, 3 ♂, 4 ♀.

RANGE.—Tropical Zone, eastern Ecuador.

While this species is obviously a representative of *boucardi*, the full black throat of the female seems to me to be a specific character, and, in the light of our present knowledge, I should regard the eastern Ecuadorean bird as a mutational, non intergrading form. This theory finds support in the characters of *M. emiliae* of the Tocantins in which the female has the throat chestnut, the abdomen black.

The male differs from the male of *bicolor*, its nearest ally, geographically, in having much less white in the tail and much more in the back. These, however, are racial differences, and it is on the mutational rather than environmental character of the female that I base my belief in the specific distinctness of this bird.

(2036) ***Terenura callinota* (Scl.)**

Formicivora callinota SCL., P. Z. S., 1855, p. 89, pl. xevi ("Bogotá").

Terenura callinota, TACZ. & BERL., P. Z. S., 1885, p. 118 ("Pallatanga"—Fraser); SCL., Cat. Bds. B. M., XV, 1890, p. 257 (near Nanegal—Buckley).

Sabanilla, 1 ♀ im.

RANGE.—Subtropical Zone; eastern Peru to Colombia, eastern and western Ecuador.

Our one specimen is from eastern Ecuador; I have seen none from western Ecuador.

(2038) ***Terenura humeralis* Scl. & Salv.**

Terenura humeralis SCL. & SALV., 1880, p. 159 (Sarayacu, Ec.); GOODF., 1902, p. 65 (Papallacta).

RANGE.—Eastern Ecuador and upper Amazon.

I have not seen this species. One of the localities from which it is recorded is in the Tropical, the other in the Temperate Zone.

(2050) ***Cercomacra cinerascens* (Scl.)**

Formicivora cinerascens SCL., P. Z. S., 1857, p. 131 (Rio Napo); 1858a, p. 67 (Napo).

Formicivora caeruleascens, SCL., 1854, p. 112 (Quijos).

Cercomacra napensis SCL., P. Z. S., 1868, p. 572 (Rio Napo); cf. Hellm. Nov. Zool., XII, 1905, p. 288.

Rio Suno, 4 ♂, 4 ♀; below San José, 3 ♂.

RANGE.—Guianas to eastern Ecuador and northeastern Peru.

These specimens, females as well as males, all have more or less con-

cealed white in the back. Possibly the presence of this character may be attributed to individual variation. It is, however, also shown by a male and a female from southeastern Colombia.

(2053) *Cercomacra tyrannina tyrannina* (Scl.)

Pyriglena tyrannina SCL., P. Z. S., 1885, p. 90, pl. xcvi (Bogotá).

Cercomacra tyrannina, SCL., 1860e, p. 294 (Esmeraldas); B. & T., 1883, p. 565 (Chimbo); S. & F., 1899b, p. 30 (Rio Peripa); HART., 1902, p. 612 (Sair Javier; Pambilar).

Cercomacra tyrannina pallescens CHUBB, Bull. B. O. C., XXXVIII, 1918, p. 85 (Esmeraldas, Ec.).

Bucay (Rhoads).

Esmeraldas, 3 ♂, 2 ♀; Rio de Oro, 4 ♂, 1 ♀; Naranjo, 1 ♂ im.; Chimbo, 1 ♂, 1 ♀; Bucay, 1 ♀.

RANGE.—Tropical Zone: the species, the lower Amazon to southeastern Mexico; the race, lower Amazon to Panama; western, but not eastern Ecuador.

A re-examination of our large series of specimens of this bird from Panama, Colombia, and Ecuador, leads to the conclusion already expressed in my 'Distribution of Bird-Life in Colombia' to the effect that only one form of this species is found from at least central Panama to western Ecuador, including all of Colombia north of Amazonia. Chiriqui specimens are intermediate between *tyrannina* and *crepera* but from Costa Rica to southeastern Mexico the last-named well-marked form occurs.

In topotypical specimens from the Bogotá region, the tail averages longer than in those from Ecuador, western Colombia, and Panama, and if this difference should be considered of racial value, Lawrence's name *rufiventris*, based on a female from Panama, would doubtless be applicable.

In this connection, however, specimens from British Guiana¹ must be taken into consideration. Males average darker than Bogotá birds and agree in color and in size with specimens from Ecuador, a fact which further induces me to believe in the desirability of applying the name *tyrannina* to all specimens from Guiana to Panama and western Ecuador. This belief I may add is strengthened by Hellmayr's statement² that specimens from the district of Para³ "are not different from topotypical Bogotá skins except in averaging somewhat smaller." This species is apparently unknown in eastern Ecuador, *Cercomacra tyrannina atrogularis* Lletget being, in my opinion, *Cercomacra serva*.

¹ Nov. Zool., XII, 1905, p. 286.

² Nov. Zool., XII, 1905, p. 286.

³ *Cercomacra tyrannina leta* Todd, Proc. Biol. Soc. Wash., 1920, p. 73.

(2055) *Cercomacra nigrescens approximans* Pelz.

Cercomacra approximans PELZ., Orn. Bras., 1869, pp. 85, 158 (Engenho do Cap Gama); B. & T., 1885, p. 100 (Mapoto; Machay).

Sabanilla, 1 ♂; Guayaba, 1 ♂, 1 ♀; Macas, 1 ♂; lower Sumaco, 2 ♂, 2 ♀; below Oyacachi, 4 ♂, 5 ♀.

RANGE.—Tropical Zone upward to the lower border of the Subtropical: the species, French Guiana to Bolivia and eastern Ecuador; the race, lower Amazon to Bolivia and eastern Ecuador.

This species ranges upward to 5,700 feet in Ecuador and to at least 4,000 feet in eastern Peru (Tulumayo, Vitoc Valley). Specimens from these altitudes agree in color with those from the lower Amazon but average larger, the tail especially being longer (♀ 62 mm.; ♂ 64 mm.).

Dr. Snethlage's records show that this species and *Cercomacra tyrannina* are associated in the lower Amazon, and in spite of their close resemblance they are apparently therefore specifically distinct. Outside of lower Amazonia, however, one seems to replace the other, *tyrannina* being the more northern, *approximans* the more southern form. The female of a topotypical (Cayenne) pair of true *nigrescens* agrees in color with our series of *approximans*, the male is darker than any of our males of *approximans* and has only the faintest trace of white tips on the wing-coverts, two coverts on the left side exhibiting minute, barely perceptible, terminal white tips.

The salient differences between them and the closely allied *C. serva* may be briefly summarized as follows:¹

Adult Males

Throat decidedly darker than rest of underparts . . . *C. serva*

Throat not darker than rest of underparts.

Flanks and ventral region tinged with olivaceous;
wing-quills externally margined with ashy gray . . . *C. t. tyrannina*

Flanks and ventral region not olivaceous; wing-
quills margined with slate-gray *C. nigrescens approximans*

Adult Females

Forehead broadly dark zinc-orange or xanthine-orange,
the same color as the underparts *C. nigrescens approximans*

Forehead not broadly marked with the color of the
underparts.

Underparts darker, dark zinc-orange or xanthine-
orange *C. serva*

Underparts lighter, ochraceous-orange *C. t. tyrannina*

¹ The differences between *serva* and *approximans* are fully stated by Hellmayr in Arch. für Naturg., 1919, pp. 104, 105.

(2056) *Cercomacra serva* (Scl.)

Pyriglena serva SCL., P. Z. S., 1858, p. 66 (Napo, Ec.); 1858*d*, p. 147 (Rio Napo).

Cercomacra serva, S. & F., 1899*b*, p. 30 (Valle del Zamora).

? *Cercomacra tyrannina atrogularis* LLETGET, Bol. Real. Soc. Esp., 1918, p. 341 (Napo).

Macas, 1 ♀; Rio Suno, 8 ♂, 4 ♀; below San José, 3 ♂, 3 ♀.

RANGE.—Base of the Andes from eastern Ecuador to Bolivia.

The males are considerably blacker than two from Rio Távora and La Pampa in southeastern Peru. (See, however, Hellmayr, Nov. Zoöl., XIII, p. 343.)

(2058) *Cercomacra nigricans* Scl.

Cercomacra nigricans SCL., P. Z. S., 1858, p. 245 (Santa Marta); B. & T., 1885, p. 100 (Yaguachi); HART., 1902, p. 612 (Pambilar).

Cercomacra maculosa SCL., 1860*d*, p. 279 (Babahoyo); 1860*e*, p. 294 (Esmeraldas).

Cercomacra maculicaudis, HART., 1898, p. 492 (Chimbo).

Esmeraldas, 5 ♂, 7 ♀; coast of Manaví, 2 ♂, 1 ♀; Naranjo, 1 ♂; Bucay, 1 ♂, 2 ♀; Chimbo, 1 ♀; Jubones, 1 ♂; Santa Rosa, 4 ♂, 4 ♀.

RANGE.—Tropical Zone from the Orinoco to Panama and western but not eastern, Ecuador.

Examination of a large series of this species from throughout its range reveals no racial variation.

(2057) *Sipia*¹ *rosenbergi* (Hart.)

Cercomacra rosenbergi HART., Bull. B. O. C., VII, 1898, p. xxix, (Cachaví, n. Ec.); 1898, p. 492 (Cachaví).

Pato de Pajaro (2,000 ft.), 1 ♂.

RANGE.—Tropical Zone; western Colombia and northwestern Ecuador.

Two specimens of this species from San José and the Chocó region of Colombia respectively, are paler below and have less black on the throat than our single Ecuadorean example.

(2061) *Sipia berlepschi* (Hart.)

Pyriglena berlepschi HART., Bull. B. O. C., VII, 1898, p. xxix (Cachaví, n. w. Ec.); 1898, p. 493 (Cachaví).

Cercomacra berlepschi, HART., 1902, p. 612 (Cachaví; Bulún; San Javier; Carondelet; Ventana).

¹ *Sipia*, new genus, Hellmayr, Field Mus. Pub., No. 223, 1925, p. 224 (type *Pyriglena berlepschi*).

Thamnophilus cachabiensis, HART., 1898, p. 491 (Cachaví).

Sipia berlepschi, HELLM., Field Mus. Pub. No. 223, p. 224 (Rio Cayapas).

RANGE.—Tropical Zone, western Colombia and northwestern Ecuador.

Our only specimens of this species are from Colombia.

(2063a) *Pyriglena castanoptera* Chubb

Pyriglena castanopterus CHUBB, Bull. B. O. C., XXXVI, 1916, p. 47 (Baeza, Ec.).

Below Oyacachi, 1 ♂, 3 ♀ ad., 1 ♀ juv.; Sabanilla, 2 ♀; lower Sumaco, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone, eastern Ecuador and eastern Colombia.

This is clearly a representative of *P. picea* of the Subtropical Zone of eastern Peru. The relationships of the group to which it belongs are discussed by me in Amer. Mus. Novit., No. 67, 1923, p. 7.

(2066a) *Pyriglena pacifica* Chapm.

Pyriglena pacifica CHAPM., Amer. Mus. Novit., No. 67, 1923, p. 6 (Puente de Chimbo, Ec. Orig. descr. and syn. of relationships).

Pyriglena picea, SCL., 1860d, p. 279 (Babahoyo); 1860e, p. 294 (Esmeraldas); B. & T., 1883, p. 566 (Chimbo); 1884, p. 302 (Cayandeled).

Pyriglena leuconota aterrima, MEN., 1911, p. 34 (Gualea).

Bucay (Rhoads).

Esmeraldas, 4 ♂, 3 ♀; Naranjo, 5 ♂, 1 ♀; Bucay, 1 ♂, 1 ♀; Chimbo, 2 ♀; Rio Jubones, 1 ♂, 2 ♀; La Puente, 1 ♂; Portovelo, 1 ♀; Cebollal, 2 ♀; Alamor, 1 ♂.

RANGE. Humid Tropical Zone of western Ecuador.

The female of this species resembles the female of *P. leucoptera* of eastern Brazil but has the interscapulars basally white.

(2069) *Pithys albifrons peruviana* Tacz.

Pithys albifrons peruviana TACZ., Orn. Pez., II, 1884, p. 73 (Monterico).

Pithys albifrons, SCL., 1858a, p. 67 (Napo).

Pithys peruvianus, ALLEN, 1889, p. 74 (Napo).

Pithys peruviana, S. & F., 1899b, p. 32 (Valle del Zamora; Valle del Rio Santiago).

"Napo," 8; Rio Suno, 4 ♂.

RANGE.—Tropical Zone: the species, Cayenne to Peru; the race, eastern Ecuador and eastern Peru.

While I have seen no intergrades between this form and true *albifrons* (of which we have a good series from Cunucunuma on the upper Orinoco to British Guiana), I believe that these birds will be found to be racially related.

(2070) *Gymnopathys leucaspis leucaspis* (Scl.)

Myrmeciza leucaspis SCL., P. Z. S., 1854, p. 253, pl. LXX (Chamicuros, Peru).

Gymnopathys ruficeps, S. & F., 1899, p. 32 (Valle del Rio Santiago).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone: the group, upper Amazon to Nicaragua; the race, eastern Peru, eastern Ecuador, and eastern Colombia.

I have seen no Peruvian specimens. A 'Bogotá' specimen is paler above and less black below and is therefore intermediate between true *leucaspis* and *ruficeps* of the Antioquia region.

(2071) *Gymnopathys bicolor æquatorialis* (Hellm.)

Pithys bicolor æquatorialis HELLM., Orn. Monatsb., X, 1902, p. 33 (Lita, n. w. Ec.).

Pithys leucaspis, HART., 1898, p. 493 (Chimbo); GOODF., 1902, p. 65 (Santo Domingo).

Gymnopathys ruficeps, HART., 1902, p. 613' (Chimbo; Paramba).

Gymnopathys leucaspis æquatorialis, MEN., 1911, p. 35 (Santo Domingo).

Junction Chanchan and Chiguancay (Rhoads).

Esmeraldas, 2 ♂, 3 ♀; Rio de Oro, 5 ♂, 1 ♀; Naranjo, 2 ♂, 1 ♀, 1 ?; Chimbo, 1 ♀; Bucay, 1 ♀; Santa Rosa, 1 ♀.

RANGE.—Tropical Zone: the species, from southwestern Ecuador to Honduras; the race, southwestern Ecuador to southwestern Colombia.

Three forms of this species, *bicolor*, *daguae*, and *æquatorialis*, occur in western Colombia, while in Antioquia there is found a representative but apparently non-intergrading form, *Gymnopathys leucaspis ruficeps* Salvin & Godm. In its rufous upperparts this last-named race more closely resembles *æquatorialis* than it does its geographically nearest ally, *bicolor bicolor*. These facts suggest the origin of *æquatorialis* direct from *leucaspis leucaspis* and its subsequent range extension up the Pacific coast into Central America, while *ruficeps* has also been derived from *leucaspis leucaspis*, but through eastern Colombia.

(2078) *Gymnopathys melanosticta* (Scl. & Salv.)

Pithys melanosticta SCL. & SALV., P. Z. S., 1880, p. 160 (Sarayacu).

Anoplops melanosticta, HELLM., Nov. Zoöl., XVII, 1910, p. 366 (dist.).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone; southeastern Peru to eastern Ecuador, east to the Rio Madeira.

A male from La Pampa, southeastern Peru, is decidedly more rufescent throughout than our one Ecuadorean specimen. If the difference

is constant, the Peruvian bird is separable. In its large, bare eye-space and elongate crown feathers this bird resembles *hoffmannsi* and *gymnops*, these three species forming a group (*Rhegmatorhina* Ridgw.) which seems generically separable from *Gymnopathys*.

(2084) ***Myrmeciza melanoceps* (Spix)**

Thamnophilus melanoceps SPIX, Av. Bras., II, p. 28, pl. XXXIX, fig. 1 ("in sylvis Paræ"; Rio Ica, northwestern Brazil, substituted by Cory and Hellm.); SCL., P. Z. S., 1858, p. 65 (Rio Napo; Quixos).

Thamnophilus corvinus SCL., P. Z. S., 1858, p. 65 (Quixos); p. 210 (Rio Napo).

Rio Suno, 2♂, 1♀.

RANGE.—Tropical Zone; southeastern Colombia to eastern Peru.

The tail in the males measures 60 and 62 mm.

(2086) ***Myrmeciza fortis* (Scl. & Salv.)**

Percnostola fortis SCL. & SALV., P. Z. S., 1867, p. 980, pl. xlv (Pebas); Cat. Bds. B. M., XV, 1890, p. 274 (Sarayacu); S. & F., 1899b, p. 31 (Valle del Rio Santiago).

Rio Suno, 4♂, 4♀.

RANGE.—Tropical Zone; upper Amazonia.

The females agree in color with one from southeastern Colombia and all have the crown, back, and tail much lighter, more rufescent than in an apparent female (sexed 'male') from southeastern Peru. Males from Peru and Ecuador are alike.

(2091) ***Myrmeciza maculifer maculifer* (Hellm.)**

Myrmelastes exsul maculifer HELLM., Nov. Zoöl., XIII, 1906, p. 340 (Paramba, n. w. Ec.).

Myrmeciza exsul, SCL., 1860e, p. 294 (Esmeraldas); B. & T., 1883, p. 566 (Chimbo); HART., 1898, p. 493 (Cachavi; Paramba); S. & F., 1899b, p. 31 (Rio Peripa); GOODF., 1902, p. 65 (Santo Domingo) Guanacillo).

Bucay; junction Chanchan and Chiguancay (Rhoads).

Esmeraldas, 8♂, 3♀; Rio de Oro, 4♂, 2♀; Naranjo, 7♂, 1♀; Chimbo, 3♂, 1♀; Bucay, 1♀; Rios Cocco and Chimbo, 1♀; La Chonta, 1♂.

RANGE.—Tropical Zone: the species, western Ecuador to eastern Panama; the race, southwestern Ecuador to the upper Atrato, Colombia.

Represented from central Panama to Costa Rica by the closely allied *Myrmeciza exsul*. The distribution of this species is discussed in my 'Distribution of Bird-Life in Colombia' (pp. 382, 383).

(2091a) *Myrmeciza immaculatus berlepschi* Ridgw.

Myrmeciza berlepschi RIDGW., Proc. Biol. Soc. Wash., XXII, 1909, p. 74 (Chimbo, Ec.).

Thamnophilus immaculatus, SCL., 1860c, p. 89 (Nanegal); B. & T., 1883, p. 564 (Chimbo; HART., 1898, p. 491 (Cachaví; Chimbo); GOODF., 1902, p. 64 (Santo Domingo; San Nicolas).

Myrmelastes immaculatus, S. & F., 1899b, p. 31 (Rio Peripa).

Myrmelastes immaculatus belepschi, MEN., 1911, p. 35 (Mindo; Gualea); L. & R., 1922, p. 68 (Santo Domingo; below Gualea).

Bucay; junction Chanchan and Chiguancay (Rhoads).

Mindo, 2♂; Rio de Oro, 2♂, 3♀; Naranjo, 1♂, 3♀; Bucay, 3♂, 1♀; Chimbo, 5♂, 1♀; La Chonta, 1♀; Santa Rosa, 1♀; Las Piñas, 1♂, 1♀.

RANGE.—Tropical to Subtropical Zone: the species, Colombia west of East Andes, western Ecuador, eastern and western (but not central) Panama; Costa Rica; the race, western Ecuador, western Colombia, and eastern Panama.

With much additional material for examination I now reach essentially the conclusions in regard to the forms of this species advanced in my 'Distribution of Bird-Life in Colombia' (p. 384). As therein stated, true *immaculata* (which occupies Colombia between the eastern slope of the West Andes and western slope of the East Andes) may be distinguished from *berlepschi* by the comparatively small amount of white on the wing in both sexes and by the duller, grayer underparts of the female; furthermore, it has a slenderer bill. Of the distinctness of these races there is really no question, and our inquiry concerns rather the relationships of the Ecuadorean and Costa Rican forms. Carriker (Ann. Carnegie Mus., 1910, p. 618; cf. also Ridgw., Bull. No. 50, U. S. Nat. Mus., V, p. 115) believes them to be identical, and, as a matter of fact, they are so closely related that there are no constant color differences between them and, in my opinion, only certain differences in size warrant their separation. With an excellent series of Costa Rican birds, from the Dwight collection, I can detect no difference in the amount of white on the wing between Costa Rican and Ecuadorean birds. Females from Costa Rica have the feathers of the abdomen less widely tipped with brown, and, in consequence, a certain amount of gray usually is evident in this region, which thus shows a resemblance to the same part in true *immaculata*. This variation, however, is not constant, and, as the appended measurements show, it is the shorter tarsus and longer tail of *zeledoni* which distinguish it from *berlepschi*. Specimens from western Colombia and eastern Panama show no approach to true *immaculatus*. They agree with *berlepschi* in color and have the shorter tail of that form but in tarsal length they are intermediate between it and *zeledoni*. These facts, in connection with the continuous distribution of the bird

from southwestern Ecuador to eastern Panama, and its apparent absence from central Panama, induce me to refer specimens from western Colombia and eastern Panama to *berlepschi* rather than to *zeledoni*. It is worthy of note that in Ecuador this species is known only from the Tropical Zone; in Colombia it is confined chiefly to this zone but ranges upward to the subtropics, while in Panama and Costa Rica it is apparently confined to the Subtropical Zone.

		<i>Measurements</i>		
		Wing mm.	Tail mm.	Tarsus mm.
Costa Rica	3♂	81 (80-82.5)	77.7 (77-78.5)	34.2 (33.5-35)
Chimbo, Ec.	4♂	81 (79-84)	75 (74-77)	38.2 (38-39)
N. W. Colombia and e. Panama	4♂	79.5 (77-83)	73.1 (71-75)	34.8 (34-36.5)
Costa Rica	4♀	79 (77-81.5)	76.1 (75-78)	34.1 (33-35)
Chimbo and Naranjo, Ec. . .	4♀	78.4 (77-79)	69.3 (69-70)	37.2 (36-38)
N. W. Colombia and e. Panama	4♀	79.1 (76.5-82)	71.2 (69-75)	34.2 (33-36)

(2108) *Myrmeciza læmosticta nigricauda* Salv. & Godm.

Myrmeciza nigricauda SALV. & GODM., Biol. Cent. Am., Aves II; 1892, p. 23 (Intac, Ec.).

RANGE.—Tropical Zone: the species, western Ecuador to Costa Rica; the race, northwestern Ecuador to eastern Panama.

Our only specimens are from western Colombia and eastern Panama.

(2097) *Sclateria argentata* (Des Murs)

Herpsilochmus argentatus DES MURS, Voy. Casteln., Ois., 1856, p. 53, pl. xvii, fig. 2 (Nauta, Peru).

Heterocnemis argentata, SCL., Cat. Bds. B. M., XV, 1890, p. 277 (Sarayacu—Buckley).

RANGE.—Tropical Zone; Cayenne to eastern Ecuador and Peru.

I have seen no specimens from Ecuador.

(2099) *Sclateria schistacea subplumbea* (Scl. & Salv.)

Dysithamnus subplumbeus SCL. & SALV., P. Z. S., 1880, p. 158 (Sarayacu, Ec.); B. & T., 1885, p. 99 (Mapoto).

Dysithamnus plumbeus, SCL., P. Z. S., 1858, p. 457 (Zamora only).

Heterocnemis leucostigma, SCL., Cat. Bds. B. M., XV, 1890, p. 276 (Sarayacu only).

Sclateria schistacea subplumbea, HELLM., Nov. Zoöl., XIII, 1906, p. 347 (crit.).

Rio Suno, 6♂, 6♀; below San José, 3♂, 1♀.

RANGE.—Tropical Zone: the species, the Guianas to southeastern Peru; the race, eastern Colombia to northeastern Peru

The generic relationships of this bird are discussed by Hellmayr (Field Mus. Pub., No. 223, p. 255). With *naevia* as the type of *Sclateria* I feel that this species belongs in *Myrmeciza* rather than in that genus.

(2104) **Dichrozona cincta** (Pelz.)

Cyphorhinus (Microcerculus) cinctus PELZ., Orn. Bras., I. 1868, pp. 47, 65 (São Joaquin, Rio Negro).

Hypocnemis stellata SCL. & SALV., P. Z. S., 1880, p. 160, (Sarayacu).

Below San José, 1 ♂.

RANGE.—Tropical Zone; Amazonia; Bolivia to Colombia and eastward to Santarem.

(2113a) **Myrmoderus griseiceps** Chapm. (Plate XXVIII)

Myrmoderus griseiceps CHAPM., Amer. Mus. Novit., No. 86, 1923, p. 6 (Palambra, Peru).

Specific Characters.—Male resembling male of *Myrmoderus atrothorax* (Bodd) of Amazonia, but entire head and nape deep neutral gray; flanks Dresden-brown; all but central rectrices and wing-coverts tipped with white. Female with throat and breast grayish; flanks as in the male.

La Chonta, 1 ♂; Alamor, 6 ♂, 2 ♀; Celica, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone, southwestern Ecuador and northwestern Peru.

This species is apparently a non-intergrading representative of *Myrmoderus atrothorax* of the Tropical Zone from Venezuela to Bolivia.

(2117) **Myrmoderus hemimelænus hemimelænus** (Scl.)

Myrmeciza hemimelæna SCL., P. Z. S., 1857, p. 48 (Bolivia); Cat. Bds. B. M., XV, 1890, p. 284 (Sarayacu—Buckley).

RANGE.—The species, Amazonia.

A male in the British Museum from Sarayacu differs from a Bolivian male in having less black on the throat, the white of the belly being more extensive. Much the same variation, however, is shown by two males in our collection from southeastern Peru.

M. spodiogaster Berl. & Stolz. from Borgona, central Peru, is described as having the center of the abdomen schistaceous rather than white, but the abdomen of a male in our collection from La Pampa approaches this condition; while a female from Rio Tavará, southeastern Peru, differs from average Bolivian females of *hemimelænus* much as the female of *spodiogaster* is said to differ from it. These facts in variation and distribution, in connection with the further fact that Berlepsch and Stolzmann based *spodiogaster* on but one pair of birds, suggests the possibility of its identity with *hemimelænus*.

(2121) *Hypocnemis cantator peruviana* Tacz.

Hypocnemis peruvianus TACZ., Orn. Per., II, 1884, p. 61 (Chamicuros, Peru).

Hypocnemis cantator, SCL., 1858a, p. 67 (Napo).

Zamora, 2♂, 7 ♀; Rio Suno, 6♂, 5 ♀; below San José, 5♂, 1 ♀.

RANGE.—Tropical Zone: the species, Amazonia; the race, Tocantins to Bolivia, north to Colombia.

Our specimens have been compared with four males and a female from Moyabamba. They may be distinguished from other forms of the species by the more heavily streaked back, more olivaceous, less rufescent rump and wing-margins of both sexes, by the greater amount of white at the base of the interscapulars in the male, and by the less fulvous, more nearly white, crown-stripes in the female. Specimens from east of the Madeira and south of the Amazon may be separable from true *cantator*, but are to be referred to that form rather than *peruviana*.

(2124) *Hypocnemis hypoxantha hypoxantha* Scl.

Hypocnemis hypoxantha SCL., P. Z. S., 1868, p. 573, pl. xliii (Upper Amazon); Cat. Bds. B. M., XV, 1890, p. 286 (Sarayacu).

RANGE.—Tropical Zone: the species, Amazonia; the race, upper Amazonia.

Three Sarayacu specimens in the British Museum agree with the type.

(2128) *Hypocnemis lepidonota lepidonota* Scl. & Salv.

Hypocnemis lepidonota SCL. & SALV., P. Z. S., 1880, p. 160 (Sarayacu); S. & F., 1899b, p. 31 (Valle del Río Santiago).

Hypocnemis pæilonota, SCL., 1858a, p. 67 (Napo).

Zamora, 2♂, 2 ♀; Rio Suno, 3♂, 4 ♀; below San José, 4♂, 3 ♀.

RANGE.—Tropical Zone: the species, upper Amazonia north of the Amazon; the race, eastern Ecuador and southeastern Colombia.

This species is evidently a representative of *H. pæilonota*, from the male of which it cannot be distinguished. The females of the two species are, however, so unlike that until their intergradation is actually proven I feel that it should not be assumed that it occurs.

(2129) **Myrmoborus leucophrys leucophrys** (Tsch.)

Pithys leucophrys TSCH., Faun. Per., Aves, 1845, No. 6, p. 176, pl. xi, fig. 2 (Tulumayo, Peru).

Zamora, 8♂, 4♀; Rio Suno, 3♀; below San José, 1♂, 1♀.

RANGE.—Tropical Zone: the species, Amazonia; the race, upper Amazonia from Venezuela to Bolivia.

Comparison of Colombian and Bolivian specimens shows that Colombian males average darker below and have more silvery white on the forehead, while Colombian females have the forehead, crown and superciliary stripe more rufescent; and the tips to the wing-coverts are paler. These differences, however, are not, in my opinion, sufficiently constant to be of diagnostic value. Ecuadorean birds are intermediate in these characters. In the degree of rufescence of the upperparts there is much variation in females from the same locality. *Myrmoborus leucophrys* "*angustifrons*" is represented in our collection by a male and a female from French Guiana and two males and a female from the Tocantins. All these specimens can be closely matched by specimens from the base of the Andes. If they truly represent *angustifrons*, the validity of that form is open to question.

(2131) **Myrmoborus myotherinus myotherinus** (Spix)

Thamnophilus myotherinus SPIX, Av. Bras., II, 1825, p. 30, pl. xlii, fig. 1 (Fontebó, Brazil, by Berl. & Hart., Nov. Zoöl. IX, 1902, p. 78; Rio Ica by Hellm.).

Hypocnemis melanosticta SCL., 1858a, p. 67 (Napo).

Hypocnemis myiotherina, SCL., 1858a, p. 67 (Napo); GOODF., 1902, p. 65 (Baeza).

Hypocnemis myotherina myotherina, HELLM., Nov. Zoöl., XIV, 1907, p. 20 (e. Ecuador; rev. of group).

Rio Suno, 6♂, 3♀; below San José, 2♂, 1♀.

RANGE.—Tropical Zone: the species, Amazonia; the race, northeastern Peru to eastern Colombia and the lower Orinoco.

I follow Hellmayr in referring eastern Ecuadorean specimens to this race.

(2141) **Myrmochanes hemileuca** (Scl. & Salv.)

Hypocnemis hemileuca SCL. & SALV., P. Z. S., 1866, p. 186 (lower Ucayali); BRAB. & CHUBB, Bds. So. Am., I, 1912, p. 213 (e. Ecuador).

RANGE.—Tropical Zone; upper Amazonia.

This species is recorded from eastern Ecuador by Brabourne and Chubb, but I know not on what authority. Our only specimen is from Reyes, Bolivia (type of *Myrmochanes hypoleucus* Allen).

(2143) *Hylophylax nœvia theresæ* (*Des Murs*)

Conopophaga theresæ DES MURS, Voy. Casteln., Ois., 1855, p. 51 pl. xvi, fig. 2 (Rio Javari).

Hypocnemis theresæ, SCL., 1858a, p. 7 (Napo); S. & F., 1899b, p. 31 (Valle del Rio Santiago; Valle del Zamora).

Rio Suno, 7 ♂, 4 ♀; below San José, 4 ♂, 1 ♀; above Archidona, 2 ♂, 1 ♀; Zamora, 2 ♀.

RANGE.—Tropical Zone: the species, Amazonia; the race, upper Amazonia, Colombia to Bolivia, east to the Tapajoz.

After comparison with the type, Hellmayr refers eastern Ecuadorean specimens to *theresæ*. Nine females from southeastern Colombia and Ecuador are more deeply colored below than six others from southeastern Peru and Bolivia. On the other hand, two males from La Morelia southeastern Colombia, have the flanks paler than any other males in our series of twenty-four specimens.

(2146) *Hylophylax nœvioides nœvioides* (*Lafr.*)

Conopophaga nœvioides LAFR., Rev. Zoöl., 1847, p. 69 (no locality; Hellmayr proposes Panama).

Hypocnemis nœvioides, SCL., 1860e, p. 294 (Esmeraldas); B. & T., 1883, p. 566 (Chimbo); S. & F., 1899b, p. 32 (Rio Peripa); HART., 1902, p. 613 (San Javier); HELLM., P. Z. S., 1911, p. 1167 (crit.).

Esmeraldas, 3 ♂, 2 ♀; Rio de Oro, 3 ♂, 4 ♀.

RANGE.—Tropical Zone: the species, western Ecuador to Nicaragua; the race, western Ecuador to eastern Panama.

Ecuadorean specimens agree with a large series from eastern Panama and one from the Canal Zone, the type-locality by designation (Hellm., *loc. cit.*).

I am not familiar with *H. n. subsimilis* Todd, described from Jaraquil, Bolivar, Col. (Proc. Biol. Soc. Wash., 1917, p. 129).

(2147) *Phlegopsis nigromaculata* (*Lafr. & d'Orb.*)

Myothera nigromaculata LAFR. & D'ORB., Syn. Av., I, 1837, p. 14 (Guarayos, Bol.).

Formicarius nigro-maculatus, SCL., 1858a, p. 68 (Napo).

RANGE.—Tropical Zone, Bolivia to eastern Ecuador; representative and possibly conspecific forms occur eastward to the lower Amazon.

I have examined a Napo specimen of this species in the British Museum.

(2151) **Phlegopsis erythroptera** (Gould)

Formicarius erythropterus GOULD, Ann. & Mag. Nat. Hist., (2), XV, 1855, p. 345 (Demerara; Cory and Hellm. suggest Rio Negro, Brazil).

Phlegopsis erythroptera, SCL., Cat. Bds. B. M., XV, 1890, p. 301 (Sarayacu—Buckley).

Phlegopsis trivittata, GOODF., 1902, p. 65 (Rio Coca).

Rio Suno, 2 ♂.

RANGE.—Tropical Zone; Rio Negro and Madeira to eastern Ecuador and south-eastern Colombia.

(2150a) **Phænostictus mcleannani pacificus** Hellm.

Phænostictus mcleannani pacificus HELLM., Field Mus. Pub., No. 213, 1925, p. 321 (Bulón, Ec.).

Phlegopsis macleannani, HART., 1902, p. 613 (Bulón; Rio Bogotá).

RANGE.—Tropical Zone: the species, Ecuador to Nicaragua; the race, north-western Ecuador and southwestern Colombia. (Fig. 8, p. 7).

Our only specimens are from Barbacoas, Col.

(2152) **Myrmornis torquata** (Bodd.)

Formicarius torquatus BODD., Tabl. Pl. Enl., 1783, p. 43 (Cayenne).

Rhopoterpe torquata æquatorialis CHUBB, Bull. B. O. C., XXXVIII, 1918, p. 85 (Sarayacu, Ec.).

Rio Suno, 6 ♂, 3 ♀.

RANGE.—Tropical Zone: the species, Amazonia.

Ecuadorean specimens are said to be larger and darker, but our examples cannot be separated from lower Orinoco and British Guiana birds.

A closely allied form is found in Panama and Nicaragua.

(2155a) **Formicarius colma nigrifrons** Gould.

Formicarius nigrifrons GOULD, Ann. & Mag. Nat. Hist. (2), XV, 1855, p. 344 (Chamicuros, e. Peru); SCL., 1858a, p. 68 (Napo).

Rio Suno, 4 ♂, 4 ♀; below San José, 1 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, Peru to the Guianas; the race, Peru to Colombia, east to the Madeira and upper Orinoco.

The two specimens agree with four from Colombia and thus confirm my belief in the distinctness of this black-breasted form from that of the Orinoco and British Guiana (Compare Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 388, and also Hellm., Nov. Zoöl., XIV, 1907, p. 390).

(2156a) *Formicarius analis zamoræ* Chapm.

Formicarius analis zamoræ CHAPM., Amer. Mus. Novit., No. 96, 1922, p. 9 (Zamora, Ec.).

Subspecific Characters.—Similar to *Formicarius analis analis* (Lafr. & d'Orb.) of Bolivia but very much darker, the crown darker than the back, the feathers centrally blackish, the black of the throat extending on to the breast much as in *F. a. nigricapillus*; tail wholly black or with a barely perceptible olive-brown tinge basally. Differing from *F. a. connectens* Chapm., of eastern Colombia, much as it does from *analis* but in a less marked degree.

Zamora, 1 ♂, 1 ♀; Rio Suno, 6 ♂, 4 ♀; below San José, 3 ♂, 2 ♀.

RANGE.—Tropical Zone; the group, Amazonia to Mexico, the race, eastern Ecuador (and northeastern Peru?).

At the time I described *Formicarius analis connectens* (Bull. Amer. Mus. Nat. Hist., XXXIII, 1914, p. 173) I had only one specimen of true *analis* (which proves not to be typical) and none of the race here described. With the specimens now available I can present a more adequate description of the variations of *Formicarius analis* in western South America. Of trans-Andean forms, the one here described is the darkest and hence most closely approaches the very dark form *F. a. nigricapillus* Ridgway of western Ecuador to Costa Rica. Possibly this species may have reached western Ecuador via the Marañon route and thence extended its range northward to Costa Rica, meeting there a representative of *analis saturatus* which had come from the east; thus we should have an explanation of the occurrence of two forms of this group in that country. (Compare my remarks on this subject in Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 389.)

Proceeding northward in eastern Ecuador, decreasing rainfall is accompanied by decreasing intensity of color in this species, and we find in eastern Colombia a form which very closely approaches true *analis*, which I have called *F. a. connectens*. In the light of additional and more typical specimens of *analis*, *connectens* proves to be barely separable from that race. Only the fact that in western South America, at least, their ranges are separated by a form differing widely from them both gives sufficient weight to their slight differential characters to warrant their recognition. From this viewpoint, *connectens* averages darker below, particularly on the breast, and the black throat is less sharply defined from the breast than in *analis*. In short, *connectens* is racially, if not geographically, intermediate between *analis* and *zamoræ*.

(2157) **Formicarius analis nigricapillus** Ridgw.

Formicarius nigricapillus "Cherrie," RIDGW., Proc. U. S. N. M., XVI, 1893, p. 675 (Buena Vista, Costa Rica).

Formicarius destructus HART., Nov. Zoöl., V, 1898, p. 493 (Paramba, n. w. Ec.); S. & F., 1899b, p. 32 (Rio Peripa).

Formicarius analis, SCL., 1860e, p. 294 (Esmeraldas).

Formicarius analis destructus, HART., Nov. Zoöl., 1898, p. 493 (Paramba, Ec.); 1902, p. 614 (Paramba; Cachyjacu; San Javier; Carondelet; Lita; crit.).

Esmeraldas, 5♂, 1♀; Chone, 1?; Rio de Oro, 2♂, 1♀; Manglar Alto, 1♂, 1♀; Santo Domingo, 1♀; below Mindo, 1?; Naranjo, 2♂.

RANGE.—Tropical Zone; western Ecuador to Costa Rica.

A re-examination of our excellent series of this species from Ecuador, in connection with two freshly collected specimens in the Dwight collection from Costa Rica, proves to my mind conclusively that they are referable to but one form. The Costa Rican birds can be exactly matched both in color and size by more than half of the specimens in the Ecuadorian series, while the range of individual variation in the latter is sufficient to cover all the characters assigned to both forms.

After further study of this group, I reach the same conclusions in regard to the relationships of *F. nigricapillus* and *F. analis* as are presented in my paper on the 'Distribution of Bird-Life in Colombia' (p. 389). Carriker's statement¹ that the ranges of *nigricapillus* and *analis umbrosus* overlap in Costa Rica, and our capture of both *nigricapillus* and *analis saturatus* in the same Fauna in western Colombia (*loc. cit.* p. 390) together with their marked differences in color between *nigricapillus* and the races of *analis* all indicate their specific distinctness. I repeat, therefore, my theory that while these forms presumably had a common origin, one (*analis*) appears to have entered Central America from the east while the other (*nigricapillus*) came from the south. This theory is strengthened by our subsequent discovery that *nigricapillus* finds its nearest ally in the eastern Ecuadorean form (*zamoraë*) and the establishment of the fact that many Amazonian species have reached western Ecuador *via* the Marañon.

(2160a) **Formicarius rufipectus carrikeri** Chapm.

Formicarius rufipectus carrikeri CHAPM., Bull. A. M. N. H., XXXI, 1912, p. 146 (San Antonio, Col.).

Formicarius rufipectus, S. & F., 1899b, p. 33 (Gualea); MEN., 1911, p. 36 (Pachijal; "Oyacachi").

¹ 'Birds of Costa Rica,' p. 623.

Gualea, 2♂, 1♀; Mindo, 2♂; El Chiral, 1♂, 3♀; above Zaruma, 1♂, 1♀; Salvias, 1♂.

RANGE.—Subtropical Zone: the species, western Ecuador to Costa Rica; the race, western Ecuador to eastern Panama.

Compared with an excellent series from Colombia, including the type, the abdomen in Ecuadorean birds averages grayer, the orange-rufous of the breast being less extended posteriorly. The record of the occurrence of this species at "Oyacachi" on the east Andean slope requires confirmation.

(2161) ***Formicarius thoracicus* Berl. & Tacz.**

Formicarius thoracicus BERL. & TACZ. (Stolz. MS.), P. Z. S., 1885, p. 101 (Machay, Ec.); S. & F., 1899b, p. 33 (San José).

RANGE.—Subtropical Zone, eastern Ecuador and eastern Peru.

I have seen no Ecuadorean specimens of this species, but four birds collected by Watkins at Chaupe, northeast of Huancabamba, Peru, agree with the description of Berlepsch and Taczanowski. This is an obvious representative of *F. rufipectus*, from which it differs chiefly in its black instead of chestnut crown, browner back, almost entire absence of chestnut on the upper tail-coverts, etc.

(2164a) ***Chamæza brevicauda punctigula* Chapm.**

Chamæza columbiana punctigula CHAPM., Amer. Mus. Novit., No. 123, 1924, p. 4 (Rio Suno, Ec.).

Sabanilla, 1♂; Rio Suno, 2♂, 1♀; below San José, 3♂, 1♀.

RANGE.—Tropical Zone: the species, southeastern Brazil to Bolivia, eastern Colombia and British Guiana.

Subspecific Characters.—Similar to *Chamæza brevicauda columbiana* Berl. and Stolz., of eastern Colombia, but upperparts deeper olive, the upper tail-coverts and tail deeper, more rufescent; underparts whiter, the abdomen with little if any buffy tinge, the black markings deeper and somewhat more extensive. Three ♂, wing 90 to 92 mm.; tail 50 to 52 mm.; tarsus 36 to 38 mm.; culmen 21 to 23 mm.

I have seen no specimens of *Chamæza olivacea* Tsch., with which Berlepsch and Stolzmann¹ compared their *columbiana*, but, so far as one can judge from their description, *punctigula* is even less like that species than is *columbiana*. The Peruvian bird is larger (wing 97.5 mm.; tail 62 to 65 mm.), has the throat and belly "roux-ochreaux," and differs otherwise from both *columbiana* and *punctigula*. In a former paper I classed *columbiana* and *nobilis* as subspecies of *brevicauda* but,

¹ P. Z. S., 1896, p. 385.

as I now have specimens of both from the Rio Suno, it is evident that they are not subspecifically related. There is, however, a striking resemblance in color between *punctigula* and *nobilis*. Above they are essentially alike; below *punctigula* has the ventral region and lower tail-coverts buffy, and the underparts as a whole are not so purely white and are more streaked. The throat, as a rule, is lightly spotted but in some specimens no more so than in certain examples of *nobilis*, while the loreal region is buffy rather than ochraceous, and the tips to the rectrices are narrower and more buffy. The chief difference between the two is size, *punctigula* having the wing 90 to 92 mm; the tail 50 to 52 mm., while in *nobilis* these members measure respectively 108 to 111 m. and 56 to 60 mm. All these differences are of degree and racial in character. In the aggregate they are less striking than those existing, for example, between *Chamæza ruficauda ruficauda* and the form Hellmayr ranks as *Chamæza ruficauda turdina*. Indeed, if the two were found in different regions we should not hesitate to class them as subspecifically related, but their occurrence together demonstrates their specific distinctness. From all of which it follows that it is often unwise to rank representative forms as subspecies on the assumption that as their differences seem racial in character their intergradation may be assumed to occur.

(2167) *Chamæza nobilis* Gould

Chamæza nobilis GOULD, Ann. & Mag. Nat. Hist., (2) XV, 1855, p. 344 (Chamicuros, Peru); SCL., 1858a, p. 68 (Napo); GOODF., 1902, p. 66 (Rio Coca).

Rio Suno, 7 ♂, 8 ♀.

RANGE.—Tropical Zone: Eastern Peru to eastern Colombia.

I have seen no specimens from Peru, but Hellmayr states that four Ecuadorean birds agree with four from northern Peru in color but are somewhat smaller. Two adults from southeastern Colombia have more olive-brown on the chest than in Ecuadorean specimens but are otherwise like them. The wing in males varies from 108 to 111 mm.

(2171) *Chamæza mollissima* Scl.

Chamæza mollissima SCL., P. Z. S., 1855, p. 89, pl. 95 (Bogotá) MEN., Rev. Franc, d'Orn., 1912, p. 388 (above Baños).

Above Baeza, 1 ♂, 1 ♀; "Ambato" (=above Baños ?), 1; upper Sumaco, 2 ♂.

RANGE.—Temperate Zone: East Andes of Ecuador and East and Central Andes of Colombia.

Our five Ecuadorean specimens and one from Almaguer, in the Central Andes south of Popayán, Col., agree in being more rufescent above than two specimens from Laguneta, Col. They also have the under tail-coverts barred with ochraceous and black instead of white and black. These differences appear to be of racial value, but, in default of topotypical examples, I am unable to say which form agrees with true *mollissima*.

(2172) ***Pittasoma rufopileatum* Hart.**

Pittasoma rufopileatum HART., Nov. Zoöl., 1901, p. 370 (Salidero, n. w. Ec.); 1902, p. 615 (n. w. Ec.).

Bulón, 1 ♂; Rio Sapayo, 1 ♂.

RANGE.—Tropical Zone, northwestern Ecuador.

A highly localized species represented in southwestern Colombia by the nearly allied, but apparently specifically distinct, *P. harterti*, and in northwestern Colombia by *P. rosenbergi*.

(2174) ***Thamnocharis dignissima* (Scl. & Salv.)**

Grallaria dignissima SCL. & SALV., P. Z. S., 1880, p. 160 (Sarayacu, Ec.).

RANGE.—Tropical zone. Known from two specimens in the British Museum and from four in the American Museum from and near the junction of Napo and Curaray.

A very distinct species with no known near allies.

(2175) ***Grallaria squamigera* Prev.**

Grallaria squamigera PREV., Voy. Vénus, Zoöl., 1849, p. 198, pl. 3 (Bogotá); SCL., 1858c, p. 553 (Matos); 1860c, p. 89 (Calacali; above Puellaro); S. & F., 1899b, p. 33 (Huaca); GOODF., 1902, p. 66 (Pichincha above Quito); MEN., 1911, p. 36 (Mozo Pichincha).

Pichincha, 5 ♂, 1 ♀, 1 ?; s. side Mojanda, 1 ♂, 1 ♀; upper Sumaco, 1 ♂.

RANGE.—Humid Temperate Zone from northern Ecuador to western Venezuela.

Ecuadorean birds agree with Colombian ones in color but have the tarsus and tail slightly shorter. Immature birds are dark olive above.

(2177) ***Grallaria gigantea* Lawr.**

Grallaria gigantea LAWR., Ann. Lyc. Nat. Hist. N. Y., VIII, 1867, p. 345 (Ecuador); S. & F., 1899b, p. 33 (Pun); MEN., 1911, p. 36, pl. 3 (Pachijal).

"Gualea" (4,500 to 5,000 ft.), 3 ♂, 1 ?.

RANGE.—Northern Ecuador.

Three of our four specimens are labeled by Mr. Söderstrom as coming from 4,500 to 5,000 feet, and hence from the Subtropical Zone, but Festa records this species from Pun in the humid Temperate Zone. If this species actually is a resident of the subtropics, it may be a zonal representative of *squamigera*, though its larger size would suggest that it lived in a higher rather than a lower zone than that bird.

(2178) *Grallaria guatemalensis regulus* Scl.

Grallaria regulus SCL., P. Z. S., 1860, p. 66 (Pallatanga); B. & T., 1884, p. 302 (Pedregal); MEN., 1911, p. 37 (Gualea).

Mindo, 4♂, 1♀; below Mindo, 1?; Gualea, 1♂; Río de Oro, 1♀; Cerro Manglar, 1♂, 1♀; Naranjo, 1♀; Zamora, 1♂, 1♀; Río Suno, 2♂, 3♀; below San José, 5♂.

RANGE.—Tropical Zone: the species, Guiana and eastern Peru to southern Mexico; the race, western and eastern Ecuador to southern Peru.

In view of the number of races by which this species is represented throughout its wide range, it is remarkable that the birds of eastern and western Ecuador should not be separable. The white throat-patch is more highly developed in some examples from western Ecuador than in any other specimens of the series, but it is absent in others from the same region. The wing averages slightly longer in eastern than in western birds (♂, 97 to 101 mm.; ♀, 99 to 103.5 mm.) but the difference is largely due to individual variation. Berlepsch and Stolzmann¹ record *regulus* from Huaynapata, Peru, and it is possible that their *sororia* from Idma, above Santa Ana should be referred to this race, a view which Hellmayr shares.

(2181) *Grallaria haplnota parambæ* Roths.

Grallaria parambæ ROTHS., Bull. B. O. C., XI, 1900, p. 36 (Paramba, n. w. Ec.); HART., Nov. Zool., VIII, 1901, p. 371, pl. v, fig. 3 (type).

Mindo, 1♂ ad.; La Chonta, 1♀ im.

RANGE.—Humid Tropical Zone, western Ecuador.

This evidently rare species is doubtless found throughout the humid Tropical Zone of western Ecuador, though only the type has been previously recorded. The immature specimen still retains portions of the juvenal plumage on the nape, throat, and center of the abdomen, but in other respects agrees fairly well with the description of *parambæ*, though it is more olivaceous above than the colored figure of that bird. It is also considerably smaller than *parambæ*, a difference which may be attributed to its immaturity, though it is not improbable that the La

¹ 1906, Ornis, p. 119.

Chonta bird may be racially separable. The Mindo bird closely agrees with the plate of the type. This form is so near *haplonota* of northern Venezuela that, although the species is unknown from the intervening area, I have no hesitation in ranking them as representative races. Measurements of the type and our two specimens follow:

	Wing mm.	Tail mm.	Tarsus mm.	Culmen mm.
Paramba ¹	107	45	48	30
La Chonta	100	33	45	25
Mindo	105	40	43	28

(2186) *Grallaria nuchalis nuchalis* Scl.

Grallaria nuchalis SCL., P. Z. S., 1859, p. 441 ("Rio Napo").

Oyacachi, 1 ♀; Maspa (7,000 ft.), 1 ♂; Baeza, 1 ♂; upper Sumaco, 3 ♂, 2 ♀.

RANGE.—Upper Subtropical to humid Temperate Zone: the species, northern Ecuador to northern Colombia; the race, northeastern Ecuador.

The differences in color between this species and *ruficeps* of the Central and East Andes of Colombia are certainly no more than racial in character, true *nuchalis* being slightly darker throughout. In size, the difference between the two is more pronounced, but since *obsoleta*, the Quito region race, is midway between the two, I feel that all three should be ranked as mutually representative forms. The wing in true *nuchalis* measures 102 to 108 mm., in *obsoleta*, 107 to 111 mm., and in *ruficeps*, 115 to 117 mm.

(2186a) *Grallaria nuchalis obsoleta* Chubb

Grallaria nuchalis obsoleta CHUBB, Bull. B. O. C., XXXVI, 1916, p. 47 (w. side of Pichincha, Ec.).

Grallaria nuchalis, GOODF., 1902, p. 66 (w. side of Pichincha, 9,000 ft.); MEN., 1911, p. 37 (Pachijal).

Pichincha, 1 ♂, 1 ♀; Verdecocha, 1 ♂, 1 ♀; Mindo, 1 ?; Guallea, 1 ♂.

RANGE.—Subtropical to humid Temperate Zone; western Andes of northern Ecuador.

In this race the characters which separate *nuchalis* from *ruficeps* are still further developed, the crown being browner than in *nuchalis*, while the back has lost most, if not all, of its rufous color and become dark olive. The nape, however, remains bright cinnamon-rufous. The east Andean form, *nuchalis*, is thus intermediate between the west Andean *obsoletus* and the Colombian *ruficeps* in color, while *obsoleta* is intermediate in size.

¹ Ex. Rothschild.

(2189) *Grallaria monticola* Lafr.

Grallaria monticola LAFR., Rev. Zoöl., 1847, p. 68 ("Bolivianis Andibus"); JARD., 1856, p. 91 (e. Cordillera); SCL., 1860b, p. 78 (Panza; Guaga Pichincha; Rucu Pichincha); B. & T., 1884, p. 302 (Cechce); HART., 1898, p. 493 (Mt. Cayambe; Rio Guachala); S. & F., 1899b, p. 33 (El Troje; Zambiza; Chaupi; Chinguil; Tumbaco); GOODF., 1902, p. 66 (Quito); MEN., 1911, p. 37 (Lloa; Frutillas); RHOADS, 1912, p. 144 (Paramo of Pichincha up to 12,500 ft. and down to Huigra, 4,000 ft.).

Forest above Chambo, 10,800 to 12,500 ft.; Cumbaya; Hacienda Garzon south side Pichincha 13,500 ft. (Rhoads).

Mojanda Mts., 1 ♀; Pichincha, 2 ♂, 2 ♀, 1 ?; Yanacocha, 3 ♂, 1 ♀; Guapúlo, 1 ♂; Cerro Guamani, 3 ♂, 4 ♀; Papallacta, 2 ♂, 2 ♀; Oyacachi, 4 ♂; Mocha Cañon, 3 ♂, 1 ♀; Chimborazo, 1 ♀; Bestion, 5 ♂, 2 ♀; El Paso, 1 ♂, 1 ♀; Taraguacocha, 1 ♂. Peru: El Tambo, Piura, between Payta and Huancabamba, 1 ♂, 1 ♀.

RANGE.—Temperate Zone from northwestern Peru through Ecuador and the Andes of Colombia.

The most common member of the genus in Ecuador. There is much variation in the intensity of color of the underparts but it is evidently wholly individual. Watkins' capture of two specimens of this species at El Tambo, northwestern Peru, between Payta and Huancabamba is, so far as I am aware, the most southern point at which it has been found. It is doubtful therefore if the type came from Bolivia.

(2194a) *Grallaria hypoleuca castanea* Chapm.

Grallaria hypoleuca castanea CHAPM., Amer. Mus. Novit., No. 86, 1923, p. 8 (Baeza, Ec.).

Grallaria hypoleuca B. & T., 1885, p. 101 (Machay; Mapoto); GOODF., 1902, p. 66 (Pichincha and Papallacta, 11,000 to 12,500 ft.).

Baeza, 5 ♂, 1 ♀; Papallacta, 1 ♂; lower Sumaco, 3 ♂, 1 ♀; below Oyacachi, 3 ♂, Puente del Rio Quijos, Mirador, 1 ♂; "Mindó," 1 ♂.

Subspecific Characters.—Similar to *Grallaria hypoleuca hypoleuca* Scl. of the Bogotá region, but smaller and with the entire upperparts, including wings and tail, much deeper in color, the sides and particularly flanks, more strongly washed with the color of the back.

RANGE.—Subtropical Zone (upward to the humid Temperate?): the species, Ecuador to the Bogotá region of Colombia; the race, eastern (and western?) Ecuador and northern Peru.

This form of *Grallaria hypoleuca* is apparently not uncommon in eastern Ecuador, whence it has previously been recorded by Taczanowski and Berlepsch from Machay and Mapoto, and by Goodfellow from Papallacta and Pichincha. The latter, however, seems to have observed it only in the East Andes, and its occurrence in western Ecuador re-

quires confirmation, our "Mindo" specimens having been taken by a native collector some twenty years ago.

A specimen from La Candela, in the Central Andes of Colombia, at the head of the Magdalena Valley, while nearer true *hypoleuca*, is intermediate between that race and the one here described, both in size and in color.

(2199) ***Grallaria ruficapilla ruficapilla* Lafr.**

Grallaria ruficapilla LAFR., Rev. Zool., 1842, p. 333 (Bogotá); SCL., 1860a, p. 66 (Pallatanga); B. & T., 1884, p. 302 (Cayandeled; Cechce); 1885, p. 101 (San Rafael); S. & F., 1899b, p. 33 (Niebli); MEN., 1911, p. 38 (Alaspungo).

Grallaria taczanowskii DOMAN. & STOLZ., Comp. Rend. Sci. Soc. Warsaw, XI, 1918, p. 475 (Cayandeled, Ec.).

Huigra, 5,200 ft.; southern base of Pichincha, 10,500 ft. (Rhoads).

Pichincha, 1 ♂; Hda. Garzon, Pichincha, 1 ♂ ?, 2 ♀; Verdecocha, 1 ♂, 1 ♀, 1 ?; 'Gualea,' 1 ♂, 1 ?; above Huigra (5,200 ft.), 1 ♂; Baeza, 1 ♂, 2 ♀; "Ambato" (= Baños ?), 2; upper Sumaco, 3 ♂.

RANGE.—Chiefly subtropical, but ranging upward to the Temperate Zone: the species, northern Peru to Venezuela; the race, Colombia and Ecuador south at least to the Rio Chanchan in western Ecuador and the Rio Pastaza in eastern Ecuador.

I am unable to separate the specimens above listed from a Colombian series. An example from La Puente, on the humid western slope of the coast range south of Santa Rosa, is intermediate between this race and *connectens*.

(2199a) ***Grallaria ruficapilla connectens* Chapm.**

Grallaria ruficapilla connectens CHAPM., Amer. Mus. Novit., No. 86, 1923, p. 9 (Taraguacocha, Ec.).

El Chiral, 1 ♀; above Zaruma, 1 ♀; Salvias, 1 ♂; Taraguacocha, 2 ♂, 1 ♀; Guachanamá, 1 ♂, 1 ♀; San Bartolo, 3 ♂, 5 ♀; Celica, 1 ♂.

Subspecific Characters.—Intermediate between *Grallaria ruficapilla ruficapilla* Lafr., of Colombia and northern Ecuador, and *Grallaria ruficapilla albiloris* Tacz., of northern Peru; nearer the latter. Differs from the former in its lighter colored upperparts; less heavily streaked, more fulvous underparts; with the external margins to the wings more olivaceous, less rufescent. Differs from the latter in its slightly darker crown; more olivaceous, less grayish back; with more orange-rufous on the loreal, malar, and auricular regions; and with the streaks below darker and broader.

RANGE.—Subtropical Zone; southwestern Ecuador.

Our material shows that in Colombia and in northern Ecuador, at least as far south as Baeza on the eastern side, and as far as the valley of the Chanchan on the western side, *Grallaria ruficapilla ruficapilla*

shows essentially no variation; when, however, we reach southwestern Ecuador, at least as far north as Zaruma and both on the western and eastern slopes of the coast range, a form of *Grallaria ruficapilla* occurs which is clearly a connectant between *ruficapilla* on the north and *albiloris* on the south, but differs sufficiently from them both to make it impossible satisfactorily to refer it to either, and I have therefore described it as above.

Grallaria ruficapilla taczanowskii Doman. and Stolz., from Cayandedel, near Huigra, whence we have a specimen, is evidently to be referred to true *ruficapilla*, since the place at which the type was collected is within the range presumably occupied by that race. Specimens from Palambla, Department of Piura, on the western slope of the coast range, between Paita and Huancabamba, are to be referred to *albiloris* rather than to *connectens*, but the characters they present indicate the intergradation of these two forms, while our specimens of the latter demonstrate its intergradation with *ruficapilla*, thereby completing the evidence proving the intergradation of *ruficapilla* with *albiloris*.

(2201a) ***Grallaria watkinsi* Chapm.** (Plate XXVII)

Grallaria watkinsi CHAPM., Proc. Biol. Soc. Wash., XXXII, 1919, p. 255 (Milagros, Peru).

Portovelo, 1 ♂, 8 ♀; Alamor, 7 ♂, 4 ♀; Guainche, 2 ♂; La Puente, 1 ♂, 1 ♀.

Specific Characters.—Resembling *Grallaria ruficapilla albiloris* Tacz., but crown paler, more sharply defined from back, and with buff shaft-streaks; back more olivaceous and usually with fine shaft-streaks; ear-coverts dusky; tarsi and toes (in dried skins) pale brown, not dark blackish brown; wing and tail averaging shorter, tarsus and bill longer.

RANGE.—Subtropical Zone; west slope of Andes from Milagros, Peru, to Zaruma, and La Puente.

This large series not only confirms the characters attributed to this bird but, in connection with our specimens, establishes the unexpected fact of its specific distinctness from both *Grallaria ruficapilla connectens* and *G. r. albiloris*. It is interesting, however, that although the ranges of *watkinsi* and *connectens* are apparently coterminous, in no instance have we found them associated, and the question therefore arises whether in spite of their non-intergradation they are representative forms.

In general color *watkinsi* resembles *albiloris*, but it differs constantly from both that species and *ruficapilla connectens* in its flesh-color (instead of black) tarsi and toes and in its shaft-streaked crown and back.



1. GRALLARICULA COSTARICENSIS ZARUMÆ CHAPM.
2. APTOCRYPTORNIS LINEIFRONS CHAPM.
3. GRALLARIA WATKINSI CHAPM.

(2196) *Oropezus rufula rufula* (Lafr.)

Grallaria rufula LAFR., Rev. Zoöl., 1843, p. 99 (Bogotá); B. & T., 1884, p. 303 (Ceehce); 1885, p. 101 (San Rafael); S. & F., 1899b, p. 33 (forest, west slope of Corazon; Papallacta); GOODF., 1902, p. 66 (Pichincha and Papallacta, 11,000 to 12,000 ft.); MEN., 1911, p. 38 (Huantupungo; Mozo Pichincha; Pachijal; Alaspungo); L. & R., 1922, p. 68 (Pichincha; above Nono).

Grallaria rufula saturata DOMAN. & STOLZ., Comp. Rend. Sci. Soc. Warsaw, XI, 1918, p. 474 (San Rafael).

Pichincha, 9♂, 4♀, 2?; Verdecocha, 2♂, 1♀; Taraguacocha, 1♂; Papallacta, 1♂; Oyacachi, 6♂, 1♀; "Napo," 1?; upper Sumaco, 4♂.

RANGE.—Humid Temperate Zone: the species, southern Peru to Colombia; the race, southern Ecuador to northern Colombia.

In addition to the specimens listed above, I have eleven from Colombia, including four from the Bogotá region. Nevertheless, an even larger series is needed to enable one to discriminate between individual and geographic variation. Meanwhile I hazard the suggestion that Bogotá and Pichincha birds are not separable; that a large dark race exists in the West Andes of Colombia, and that a dark race (*saturata*), agreeing with true *rufula* in size, inhabits the East Andes of Ecuador.

(2202a) *Myrmothera campanisona minor* (Tacz.)

Grallaria minor TACZ., P. Z. S., 1882, p. 33 (Peru).

Grallaria brevicauda, SCL., Cat. Bds. B. M., XV, 1890, p. 321 (Sarayacu—Buckley).

Rio Suno, 2♂, 2♀; below San José, 3♂, 4♀.

RANGE.—Tropical Zone: the species, Guiana to Peru and Colombia; the race, Peru to Colombia and eastward.

In addition to our eleven Ecuadorean specimens, we have four from southeastern Colombia and one from Pomará on the Marañón. They exhibit a wide range of individual variation, some specimens being distinctly olivaceous; others, from the same locality, distinctly rufescent above. The most rufescent specimen, however, is not so brightly rufous as our single example from British Guiana, but the most olivaceous specimens (San José, 2) are barely if at all, separable from a Villavicencio bird which I have referred to, and which is doubtless topotypical of *modesta*. The validity of the latter is therefore challenged.

(2207) *Hylopezus dives fulviventris* (Scl.)

Grallaria fulviventris SCL., P. Z. S., 1858, pp. 68, 282 (Rio Napo); 1858d, p. 148 (Rio Napo); Cat. Bds. B. M., XV, 1890, p. 323 (Sarayacu—Buckley).

Rio Suno, 1 ♂, 2 ♀; below San José, 2 ♂.

RANGE.—Tropical Zone: the species, Amazonia to Nicaragua; the race, eastern Ecuador.

While this species has not been recorded from western Ecuador, the occurrence of a race of it in southwestern Colombia (*H. d. barbacoe*) leaves little doubt of its presence there.

(2212) *Hylopezus perspicillata periophthalmica* (Salvad. & Festa)

Grallaria periophthalmica SALVAD. & FESTA, Boll. Mus. Tor., XIII, No. 330, 1898, p. 2 (w. Ecuador); 1899b, p. 34 (Rio Peripa).

Grallaria perspicillata, HART., 1898, p. 493 (Cachaví).

Grallaria perspicillata periophthalmica, HART., 1902, p. 614 (Lita; Pambilar; Bulún; San Javier).

RANGE.—Tropical Zone: the species, western Ecuador to Costa Rica; the race, western Ecuador to the upper San Juan, Colombia.

I have seen no Ecuadorean specimens, but one from Barbacoas, Col., is doubtless typical (See Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 398).

(2213) *Grallaricula flavirostris flavirostris* (Scl.)

Grallaria flavirostris SCL., P. Z. S., 1858, p. 68 (Rio Napo); 1858d, p. 148 (Rio Napo).

Grallaricula flavirostris, SCL., Cat. Bds. B. M., XV, 1890, p. 326 (Rio Napo; Baeza; Sarayacu).

RANGE.—Subtropical Zone: the group, Bolivia to Costa Rica; the race, eastern Ecuador and eastern Colombia.

Our only specimen of this race is from Bogotá, as stated below.

Grallaricula boliviiana apparently represents *flavirostris* in Bolivia, but this bird's small bill, ochraceous, black-streaked throat, and the clearly defined premnoplex-like margins to the breast feathers differentiate it too strongly from *flavirostris* to warrant the assumption of its intergradation with that species. Moreover, the known ranges of the two forms are separated by some 1,500 miles.

Measurements

	Wing mm.	Tail mm.	Tarsus mm.	Culmen mm.	Width of bill at nostril mm.
<i>Grallaricula boliviiana</i> ♂ (type)	61	27	21	9.5	5
<i>Grallaricula flavirostris</i> Bogotá	67	28	22	12	7

(2213a) *Grallaricula flavirostris mindoensis* Chapm.

Grallaricula flavirostris mindoensis CHAPM., Am. Mus. Novit., No. 205, 1925, p. 6 (Mindo, Ec.).

Grallaricula costaricensis, L. & R., 1922, p. 68 (Mindo).

Mindo, 1 ♂, 3 ♀.

Subspecific Characters.—Similar to *Grallaricula flavirostris flavirostris* Sel. of eastern Ecuador and eastern Colombia, but upperparts more olivaceous; forehead, lores, orbital and auricular regions much more orange-ochraceous; chin and throat ochraceous instead of white.

RANGE.—Subtropical Zone; *G. f. flavirostris* eastern Ecuador and eastern Colombia; the race known only from Mindo.

I am at a loss to explain the close resemblance of this Mindo bird to the form in eastern Ecuador and its marked distinctness from the forms of western Colombia (*ochraceiventris*) and southwestern Ecuador (*zarumæ*). Although the known ranges of the two last-named birds are apparently separated by that of *mindoensis*, they are so much like each other and so unlike *mindoensis* that it is difficult to imagine them intergrading through that form.

(2213b) *Grallaricula costaricensis zarumæ* Chapm. (Plate XXVII)

Grallaricula flavirostris zarumæ CHAPM., Amer. Mus. Novit., No. 31, 1922, p. 7 (above Zaruma, Ec.).

Above Zaruma, 2 ♂ (inc. type); La Chonta, 1 ?; El Chiral, 2 ♂, 2 ♀; Salvias, 1 ♂.

Subspecific Characters.—Similar to *Grallaricula costaricensis ochraceiventris* Chapm., but all the ochraceous areas yellower, less orange-ochraceous; that of the forehead, lores, and ocular region less pronounced, the auriculars more olivaceous; black anteorbital crescent stronger; maxilla yellow or olive-yellow, rather than dark brown. Differing from *Grallaricula flavirostris mindoensis* Chapm. in having the breast without defined streaks; the abdomen largely or wholly ochraceous; the maxilla yellow, the mandible yellower. ♂: wing 65 mm.; tail 25 mm.; tarsus 23 mm.; exposed culmen 15 mm. ♀: wing 65 mm.; tail 25 mm.; tarsus 22 mm.; exposed culmen 14.5 mm.

RANGE.—Subtropical Zone: the species, Ecuador to Costa Rica; the race, southwestern Ecuador.

The yellow bill of this race is a marked character. Its relationships are discussed above.

(2215) *Grallaricula nana nana* (Laf.)

Grallaria nana LAFR., Rev. Zoöl., V, 1842, p. 334 (Colombia).

Upper Sumaco, 3 ♂, 1 ♀; lower Sumaco, 2 ♂, 1 ♀ juv.

RANGE.—Subtropical, to humid Temperate Zone: the species, northeastern Ecuador to northeastern Venezuela; the race, northeastern Ecuador to western Venezuela.

Apparently not separable from Colombian specimens. The species has not before been recorded from south of Colombia.

(2218a) *Apocryptornis lineifrons* Chapm. (Plate XXVII)

Apocryptornis lineifrons CHAPM., Am. Mus. Novit., No. 123, 1924, p. 5 (Oyacachi, Ec.).

Oyacachi, 1 ♀.

Specific Characters.—Crown slate, back brownish olive, somewhat as in *Hylopezus*, but lores and two broad stripes rising from them to the crown, white.

RANGE.—Known only from the type.

Of this very distinct and strikingly marked bird we have but a single specimen which, fortunately, is in excellent plumage and is beautifully prepared. To a combination of characters which readily distinguish it from any known species, it adds certain features not shown by other *Grallariæ*, while the conspicuous vertical white mark on each side of the forehead presents a pattern of coloration that I do not recall having seen before.

Oyacachi, whence this specimen came, is in the humid Temperate Zone, but only an intimate knowledge of conditions at this point would enable one to say whether the place at which this bird was captured was in the humid Temperate, or in an upward-reaching arm of the Subtropical Zone.

FAMILY FURNARIIDÆ. OVENBIRDS

(2244) *Furnarius cinnamomeus* (Less.)

Picolaptes cinnamomeus LESS., Rev. Zoöl., 1844, p. 433 (Guayaquil).

Furnarius cinnamomeus, SCL., 1860d, p. 277 (Babahoyo); Tacz., 1877, pp. 323, 751 (Tumbez); B. & T., 1883, p. 560 (Yaguachi); 1885, p. 94 (Yaguachi); S. & F., 1899b, p. 18 (Vinces; Balzar).

Coast of Manaví, 1 ♀; Chone, 5 ♀, 2 ♂; Daule, 1 ♂, 2 ♀; Chongoncito, 1 ♂; Guayaquil, 1 ♂; Duran, 2 ♂, 1 ♀; Santa Rosa, 5 ♂, 2 ♀; Portovelo, 1 ♀; Casanga, 1 ♀; Alamor, 1 ♀.

RANGE.—Tropical Zone, Equatorial Arid Fauna, east to the Marañon.

No bird supplies more complete evidence of the Amazonian origin of certain western Ecuadorean species than *Furnarius cinnamomeus*.

Restricted on the Pacific coast to the Equatorial Arid Fauna, it is, obviously, a representative of *Furnarius leucopus*, a species found from southeastern Brazil to the Caribbean and westward to Moyobamba, Peru. Indeed, its intergradation with that species is not beyond the bounds of probability.¹

In addition to the specimens listed above, we have a large series from the Tropical Zone, northwestern Peru (Tumbéz; Chilaco; Lamor; Paletillas; Sullana), from Palambla in the Subtropical Zone on the Pacific slope of the Andes, and also from Huancabamba at the head of the river of this name which flows into the Marañon. Bangs and Noble ('The Auk,' 1918, p. 453) also record it from this locality. Its occurrence on Amazonian drainage is thus proven and further collecting will no doubt extend its range still farther eastward.

(2255) *Upucerthia excelsior excelsior* (Scl.)

Cinclodes excelsior SCL., P. Z. S., 1860, p. 77 (Chimborazo; Panza; Guagua Pichincha, Ec.).

Upucerthia excelsior, B. & T., 1885, p. 94 (San Rafael; Chimborazo); HART., 1898, p. 490 (Cayambe Mt.); S. & F., 1899b, p. 18 (Paredones; Chaupi; Pichincha; Vallevicioso); GOODF., 1902, p. 59 (Pichincha, Pedregal, and Corazon, at about 13,000 ft.); MEN., 1911, p. 38 (Mozo Pichincha; Tumbaco); RHOADS, 1912, p. 146 (Paramo of Pichincha); L. & R., 1922, p. 68 (Pichincha, 13,000 ft.; Guamani, w. of Papallacta, 13,000 ft.).

South side of Pichincha, 13,600 ft.; above Hacienda Garzon, 12,500 ft. (Rhoads).

Chimborazo, 8♂, 5♀; Pichincha, 3♂, 1♀; Antisana, 1♀; Cerro Guamani, 4♂, 3♀; above Oyacachi, 1♂, 2♀.

RANGE.—Paramo Zone: the species, Ecuador to the northern end of the Central Andes, Colombia; the race, Ecuador, both sides of the Andes.

While unquestionably referable to true *excelsior*, specimens from Cerro Guamani show some approach to *columbianus* in their slightly paler underparts and superciliary. This is a strongly characterized species which in color and, to a less extent, in form, resembles *Cinclodes fuscus albidiventris*.

(2269) *Cinclodes fuscus albidiventris* Scl.

Cinclodes albidiventris SCL., P. Z. S., 1860, p. 77 (Panza, Ec.); B. & T., 1885, p. 94 (Chimborazo; San Rafael); S. & F., 1899b, p. 19 (Culebrillas; Vallevicioso).

Cinclodes fuscus albidiventris, HART., 1898, p. 490 (Cayambe).

Cinclodes fuscus albidiventris, MEN., 1911, p. 39 (Mozo Pichincha); L. & R., 1922, p. 68 (Pichincha, 13,500 to 14,000 ft.).

¹ Hellmayr ranks it as a subspecies of *leucopus*.

South side Pichincha, 13,600 ft.; south slope Pichincha, 12,500 ft. (Rhoads).

Antisana, 2 ♂, 2 ♀; Cerro Guamani, 4 ♂, 1 ♀; above Oyacachi, 3 ♂; Chimborazo, 10 ♂, 4 ♀; Bestion, 8 ♂, 5 ♀.

RANGE.—The species, South Temperate Zone from Tierra del Fuego northward in the Paramo Zone to northern Ecuador; Paramo Zone of Santa Marta and Méridan Andes, Venezuela; the race, Ecuador and northern Peru. (Fig. 17, p. 114.)

There is much variation in the intensity of color both of the upper and underparts, some of which is individual, some seasonal. But after making due allowance for these factors, it is probable that the darker upperparts of three specimens from El Tambo, northwestern Peru (east of Payta) are in part, at least, racial. The Bestion series is intermediate between these birds and those from Chimborazo. While the intergradation of this form with its geographically nearest ally, *Cinclodes fuscus rivularis* of Central Peru, is not proven, the two are so obviously representative races that to rank them as species would misstate their relationships. Similarly, although their ranges are apparently separated by the length of Colombia, the characters separating the Santa Marta and Mérida forms from *albidiventris* are clearly of no more than subspecific value.

That a species of southern origin which has a nearly continuous range from the Magellan region to northern Ecuador should be unknown in Colombia, except in the insular Santa Marta group, and should also be found in western Venezuela, is obviously a fact of exceptional faunal significance. But for the present we must be content with a mere statement of the case and leave its explanation to the future.

(2280) *Lochmias nematura sororia* Scl. & Salv.

Lochmias sororia SCL. & SALV., P. Z. S., 1873, p. 511 (Venezuela); SCL., Cat. Bds. B. M., XV, 1890, p. 28 (Sarayacu).

Lochmias obscurata, B. & T., 1885, p. 94 (Machay); ORNIS, 1906, p. 91 (crit.).

Rio Suno, 1 ♀; below San José, 1 ♂, 1 ♀; lower Sumaco, 1 ♀.

RANGE.—Tropical to Subtropical Zone: the species, southern Brazil to Guiana and Colombia; the race, Venezuela, Colombia and eastern Ecuador.

These specimens are darker than a bird from the Bogotá region. I have no specimens from Venezuela.

(2285) *Schizoeaca fuliginosa* (Lafr.)

Synallaxis fuliginosa LAFR., Rev. Zoöl., 1843, p. 290 (Colombia); ? B. & T., 1885, p. 95 (San Rafael).

Verdecocha (11,000 ft.), 1 ♀; Tablahuasi (12,000 ft.), 1 ♂; Cerro Guamani, 1 ♂, 1 ♀; above Oyacachi, 1 ♂; upper Sumaco, 1 ♂, 1 ♀.

RANGE.—Paramo Zone; northern Ecuador; Central and East Andes, Colombia, Paramo of Tamá, Ven.

Eleven specimens from the Central Andes of Colombia and both the West and East Andes of Ecuador, are deeper brown, less brightly rufescent than four from the Bogotá region which may be considered typically to represent *fuliginosa*. A single specimen (No. 186385) from Sumaco, however, closely resembles the Bogotá birds. Like three of them, it is in somewhat worn plumage, and although the difference between the two series is racial in character, this single specimen forces the conclusion that it is due to seasonal change.

The type of *Schizæaca fuliginosa peruviana* Cory¹ from the Paramo Zone east of Balsas near the head of the Marañon Valley, which has been kindly loaned me for examination by the Field Museum, is surprisingly near topotypes of *fuliginosa*. The forehead and flanks are grayer, but I see no other difference between them. Cory's type, however, is in fresher plumage than three of our Bogotá birds and, possibly, should be compared with the less-worn Ecuadorean birds from which it differs chiefly in its more rufescent upperparts. The status of the upper Marañon bird, however, cannot be determined from a single specimen. At the best it very nearly duplicates *fuliginosa*, and since the ranges of the two are apparently separated by that of *griseo-murina* of the Paramo Zone of southern Ecuador, its close resemblance to *fuliginosa* must evidently be attributed to parallelism. We have no evidence of the intergradation of *fuliginosa* with *griseo-murina*, and if it does not occur, *peruviana* can intergrade with *fuliginosa* only by individual variation, an event by no means impossible.

(2286) *Schizæaca griseo-murina* (Scl.)

Synallaxis griseo-murina SCL., P. Z. S., 1882, p. 578, pl. xliii (San Lucas, Ec.). Taraguacocha, 2 ♂; Paramo above Zamora, 1 ♀, 1 ?.

RANGE.—Paramo Zone; southern Ecuador.

The specimens from above Zamora are more rufescent than those from Taraguacocha and may represent another race, but comparison must be made with the type before it can be known which form is referable to true *griseo-murina*.

¹ Field Mus. Pub. No. 190, 1916, p. 339.

(2295) *Leptasthenura andicola andicola* Scl.

Leptasthenura andicola SCL., P. Z. S., 1869, p. 636, pl. xlix, fig. 2 (Panza, Ec.); B. & T., 1885, p. 94 (Chimborazo); ALLEN, 1889, p. 75 (Antisana); S. & F., 1899b, p. 19 (Chuquipoquio); GOODF., 1902, p. 59 (Pichincha and Mojanda Pass at about 14,500 ft.); L. & R., 1922, p. 68 (Pichincha, 13,000 ft., upward).

Pichincha, 1 ♀; Antisana, 2; Chimborazo, 8 ♂, 5 ♀; Cerro Huamani, 1 ♂, 1 ♀.

RANGE.—Paramo Zone: the species, southern Peru to Venezuela; the race, Ecuador, north to the end of the Central Andes, Colombia.

The Chimborazo series is topotypical.

(2305) *Synallaxis azaræ elegantior* Scl.¹

Synallaxis elegans SCL. (nec Less.), P. Z. S., 1856, p. 25 (Bogotá); 1869a, p. 414 (Pallatanga).

Synallaxis elegantior SCL., Cat. Am. Bds., 1862, p. 151 (new name for *elegans*); S. & F., 1899b, p. 19 (Pun; La Concepcion; Lloa).

Synallaxis frontalis, B. & T., 1884, p. 298 (Cayandeled; Chaguarpata; Ceehce); 1885, p. 94 (Machay; Baños).

Synallaxis frontalis elegantior, HART., 1898, p. 490 (Ibarra); GOODF., 1902, p. 59 (Gualea); MEN., 1911, p. 39 (Piscopata; Nanegal).

Synallaxis fruticicola, B. & T., 1883, p. 560 (Cayandeled).

Huigra; junction Chanchan and Chiguancay; Hacienda Garzon; Cumbaya (Rhoads).

Naranjo, 1 ♀; El Chiral, 1 ♀; La Puente, 1 ♂; above Zaruma, 4 ♂, 1 ♀, 3 ?; Alamor, 9 ♂, 3 ♀; Las Piñas, 2 ♂, 2 ♀; San Bartolo, 2 ♂, 1 ♀; Celica, 2 ♂, 2 ♀, 1 ?; Guainche, 1 ♀; Salvias, 2 ♂; Loja, 1 ♂, 2 ♀; Palambla, 2 ♂, 1 ♀.

RANGE.—Subtropical Zone: northwestern Peru and southern Ecuador; Temperate Zone: Bogotá region of Colombia, and Mérida region of Venezuela.

In addition to the Ecuadorean specimens above listed, we have fourteen specimens from Colombia, all of which are from the Bogotá region, and four from an elevation of 2,500 to 3,000 meters in the Mérida region of Venezuela.

I can find no constant racial variation in this entire series of sixty-two specimens. This form is distinguished from *media* by the yellower coloration of the upperparts; clearer rufous tail; whiter underparts with less black on the throat; more ochraceous tone of the flanks, whiter lores and, particularly, by its buffy post-ocular stripe.

The Relationships of Synallaxis azaræ media to Synallaxis azaræ elegantior. The relationships between the two forms above mentioned are most perplexing. The differences separating them are apparently

¹ Doubtless, references to both *elegantior* and *media* are included under this species.

of a racial nature and our series contains intermediates between the two. Nevertheless, it is apparent, from a study of their distribution, that while representative races they are not geographical races; that is to say, the differences between them are evidently not to be attributed to geographical influences. It will be observed that the range of *elegantior* extends from Venezuela to northwestern Peru, and therefore actually encloses the range of *media*. In Colombia and in Venezuela this race is known only from the Temperate Zone; but in Ecuador, as above mentioned, we have found it only in the Subtropical Zone. Since, however, it has been shown that the Temperate Zone in southwestern Ecuador descends to the level of the subtropics, it is not surprising that there should be this change in altitudinal distribution. On the other hand, it is difficult to explain why *media*, which is found only in the Temperate Zone in Ecuador should, in Colombia, be found both in the Temperate and the Subtropical Zones. The fact remains, however, that in spite of the large number of stations in which we have found these birds, in no one instance have we taken typical examples of both at the same place, a fact which supports the theory of their being representative forms. Our series contains intergrades between the two from La Candela (6,500 ft.), at the head of the Magdalena Valley, Col.; from Loja (7,200 ft.), southern Peru, and from El Tambo (9,200 ft.), on the divide between Payta and Huancabamba. In all these intergrading specimens there is a more or less evident development of the buffy post-ocular stripe, while the color of the back, the tail, and flanks is intermediate in tone. I incline to the belief that the relationships of these birds are to be explained by the fact that they are probably zonal representatives, one of the other, and that the differences separating them, particularly of the post-ocular stripe, are mutational in character. This theory is supported by the presence in our series from the Yungas of Bolivia of two specimens which, while in other respects agreeing with true *azarae*, have fairly well-defined buffy post-ocular stripes. This post-ocular stripe, then, may evidently appear without regard to locality and, under proper environmental surroundings, may become a fixed, diagnostic character.¹

At the southern limit of the range of this group in northern Argentina and southern Bolivia, the case of *elegantior* and *media* appears to be paralleled by that of *S. a. frontalis* and *S. superciliosa*. These two birds differ from each other very much, as does *media* from *elegantior*. In

¹ Since the above was written, I observe that Dr. Hellmayr recognizes the Ecuadorean bird under the name *fruticicola* Tacz. (P. Z. S., 1879, p. 670; Tambillo, Peru). This procedure simplifies the situation in its geographical aspects but, to my mind, obscures and evades the biological problem.

general appearance, *superciliosa* very closely resembles *elegantior*. It possesses a buffy post-ocular stripe, as in the first-named race, is whitish below, and, indeed, differs from *elegantior* only in having a somewhat darker cap and upperparts.

(2307a) *Synallaxis azaræ media* Chapm.

Synallaxis azaræ media CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 618 (Salento, Col.).

Mojanda Mts. (10,000 ft.), 2♂; Nono, 1♀; Pichincha, 1♂, 2♀; Lloa (10,800 ft.), 3♀; Yanacocha, 2♂, 2♀; Pallatanga, 1♂, 1♀; 1?; Coco and Chimbo, 1♀; El Paso (9,200 ft.), 1♂, 2♀; Bestion (10,000 ft.), 1♂, 1?; below Oyacachi, 2♀; Rio Sardinas, 1♂; Tumbaco, 1♂.

RANGE.—Subtropical and Temperate Zones: the species, northern Argentina to Colombia; the race, southern Ecuador to the northern end of the Central Andes, Colombia.

Of *Synallaxis azaræ azaræ*, we have a topotypical series of six specimens from the Yungas of Bolivia, including the type of *Synallaxis griseiventris* Allen. In addition to these birds we have eight specimens from Santo Domingo and Inca Mine, southeastern Peru, nine from the Urubamba Valley, eighteen from Chelpes, Tulumayo, Rumicruz, and Utcuyacu (alt. 4,800 to 9,700 ft.), eastern Peru, the specimens above listed from Ecuador, and twenty-six specimens from Colombia. This excellent series clearly shows the variations which this species presents from Bolivia northward. Comparing the extremes, that is, *Synallaxis azaræ azaræ* with *Synallaxis azaræ media*, we find that these two forms differ chiefly in the width of the olive-brown forehead, which is much wider in *azaræ*, and in the coloration of the underparts, which are much whiter in *media*. Specimens from Ecuador agree with the series from Colombia and are, therefore, unquestionably to be referred to *media*; but the specimens from Peru are not so easily disposed of. The series from Santo Domingo averages considerably darker below than the birds from the Yungas, and they have the frontal band somewhat wider; in other respects, including the coloration of the crown-cap and upperparts, birds from the two places are alike. The Urubamba birds agree on the whole with those from Santo Domingo, but in four specimens the feathers of the abdomen have an internal grayish loop which cannot be attributed to age, and which is apparently a purely local development, perhaps to be attributed to the isolation which prevails in this habitat. This series, however, I should refer to true *azaræ*.

The birds from central Peru (Chelpes, etc.) have the frontal band uniformly as broad as in *media*; in the coloration of the underparts

they agree essentially with *azaræ*, but the crown-cap is slightly darker than in either *azaræ* or *media*. Possibly this combination of characters of both the forms to the north and south, plus an independent character in the darker crown-cap, may warrant a separation of the central Peruvian form, but the differences are so slight, and are so bridged by individual variation, that it does not seem to me to be desirable to recognize them by name, though I confess this course makes it difficult satisfactorily to refer the central Peruvian series either to one form or to the other.¹ In Ecuador, *Synallaxis azaræ media* inhabits chiefly the Temperate Zone, but in Colombia it is found not only in the Temperate, but also in the Subtropical.

(2311) *Synallaxis mæsta brunneicaudalis* Scl.

Synallaxis brunneicaudalis SCL., P. Z. S., 1858, p. 62 (Rio Napo); 1858d, p. 145 (Rio Napo).

Synallaxis brunneicaudis, SCL., 1858b, p. 457 (Zamora).

Synallaxis mæsta, S. & F., 1899b, p. 19 (Gualaquiza; Valle del Zamora).

Zamora, 3 ♂, 1 ♀; Rio Suno, 3 ♂, 4 ♀; below San Jose, 5 ♂, 7 ♀.

RANGE.—Tropical Zone, eastern Ecuador.

Identified solely on the basis of description and locality. Mr. Bangs informs me that Sclater's type is not in the Lafresnaye collection at Cambridge. Of the specimens in the British Museum referred by Sclater to this species, the one from Zamora is immature; those from Roraima belong to a different species, since described as *Synallaxis macconnelli* Chubb (Bull. B. O. C., XXIX, 1918, p. 78). In its rufous tail and crown, this species is nearer *S. mæsta*, but in the back and underparts it more closely resembles *S. pudica nigrofumosa*.

Sclater makes no reference to the olive-brown forehead of this form but merely describes the crown as "pileo castaneis." He had, however, only one adult, and this in "bad condition," a fact which, as our own specimens show, might easily obscure the distinctive differences between the forehead and crown proper. Furthermore, there is no reason to doubt that Sclater's type came from the Napo region since many of the species contained in the collection of which it formed a part are characteristic of eastern Ecuador.

In connection with their strong resemblance, the fact that *Synallaxis mæsta obscura* of southern Colombia shows a distinct approach to *brunneicaudalis* indicates that the latter is a race of *obscura*, and it may be added that this species appears to be the eastern representative of the *S. brachyura* group.

¹ This bird has since been described as *Synallaxis azaræ infumata* Zimmer (Field Mus. Pub. No. 228, 1925, p. 103; Huanuco, Peru).

(2317) *Synallaxis albescens albigularis* Scl.

Synallaxis albigularis SCL., P. Z. S., 1858, p. 63 (Rio Napo); 1858*b*, p. 456 (Zamora); 1858*d*, p. 146 (Rio Napo).

Sabanilla, 1 ♀; Zamora, 1 ♂, 2 ♀.

RANGE.—Tropical Zone: the species, Argentina to Panama; the race, from the Amazon north to the Caribbean.

Our specimens are essentially topotypical, but are too few in number to warrant a critical comparison with our other specimens of this species from northern South America, and I therefore give the currently accepted range of the race.

(2320) *Synallaxis brachyura* Lafr. Subsp.

Synallaxis brachyura Lafr., Rev. Zoöl., 1843, p. 290 ("Colombie" = Bogotá).

? *Synallaxis subpudica*, S. & F., 1899*b*, p. 19 (Gualaquiza; Valle del Zamora).

San José, 1 ♂.

RANGE.—Ecuador to Nicaragua.

It is more than probable that the eastern Ecuadorean bird is separable, but I hesitate to take this step on the basis of a single specimen. The bird has the breast and sides of the head and neck much grayer and the chestnut-rufous areas paler than in true *brachyura*.

(2320*a*) *Synallaxis brachyura griseonucha* Chapm.

Synallaxis brachyurus griseonuchus CHAPM., Am. Mus. Novit., No. 86, 1923, p. 12 (Santa Rosa, Prov. del Oro, Ec.).

Synallaxis pudica, SCL., 1860*c*, p. 88 (Nanegal); 1860*d*, p. 278 (Babahoyo); 1860*e*, p. 294 (Esmeraldas); B. & T., 1883, p. 560 (Chimbo); 1884, p. 298 (Cayandeled); 1885, p. 94 (Yaguachi); HART., 1898, p. 490 (Chimbo; Paramba); S. & F., 1899*b*, p. 19 (Rio Peripa); MEN., 1911, p. 40 (Guala); ? L. & R., 1922, p. 69 ("below Nono"; "n. w. side Pichincha, 11,000 ft."?).

Synallaxis fuliginosa, GOODF., 1902, p. 60 (Santo Domingo; Guala; = *S. pudica* or subsp. *vide* Hellm. in litt.).

Bucay; junction Chanchan and Chiguancay (Rhoads).

Esmeraldas, 3 ♂; Mindo, 3 ♂, 1 ♀; Rio de Oro, 3 ♂, 1 ♀; coast of Manaví, 1 ♂; Duran, 1 ♂, 1 ♀; Naranjo, 1 ♂, 1 ♀; Bucay, 7 ♂; Chimbo, 1 ♂, 3 ♀; Rio Jubones, 1 ♀; Santa Rosa, 2 ♂; Portovelo, 6 ♂, 1 ♀; Rio Pindo, 1 ♀; Salvias, 1 ♂.

Subspecific Characters.—Most nearly related to *Synallaxis brachyura brachyura*, Lafr. but smaller, the wing under 60 mm., the tail under 80 mm.; foreback and nape averaging grayer; the tail lighter; the blackish throat-patch less evident; resembling *S. b. nigrofumosa*, but paler in color throughout.

RANGE.—Tropical Zone: the species, western Ecuador to central Colombia and Nicaragua; the race, western Ecuador.

The variations of *Synallaxis brachyura* are well illustrated by our large series. The Costa Rican and Nicaraguan birds are the darkest in the series. Specimens from the Canal Zone are perceptibly paler and, in fact, do not differ appreciably from the Magdalena Valley (Colombia) form. In eastern Panama and in western Colombia apparently increased humidity is reflected in greater intensity of color, and the form inhabiting this region, while on the whole averaging paler than that found in Nicaragua and Costa Rica, is, in my opinion, not separable from it. I came to this conclusion when writing on the birds of Colombia, since when Mr. Bangs, in treating of the relationships of birds from this region, considers that they differ sufficiently from true *nigrofumosa* to be worthy of recognition, and has honored me by naming them *Synallaxis brachyura chapmani*, a conclusion with which Dr. Hellmayr agrees.

With additional material now available, including a very beautiful series of fourteen adults from Costa Rica in Dr. Dwight's collection, I reach the conclusion presented in my Colombian work and, therefore, apply the name *nigrofumosa* to the birds of western Colombia. I find, for example, that in a series of sixteen adults from the lowlands of western Colombia, no less than twelve are essentially like the birds in our Costa Rican series.

Passing to the eastward in Colombia, we find that in ascending the northern end of the West Andes, at Alto Bonito, we are already approaching the paler *Synallaxis brachyura brachyura*. The characters of this form, consisting in paler coloration and larger size, are fully developed in the Magdalena Valley. The Cauca Valley form, one of the few races known to be restricted to this valley, is distinguished by its paler crown-cap.

Returning now to the west coast of Colombia and proceeding southward, a decreasing rainfall is reflected in the coloration of specimens from western Ecuador, the paler coloration of which is already noticeable in examples from Esmeraldas, and is marked in specimens from the comparatively dry southwestern Ecuador, which more closely approach those of the Magdalena Valley, but differ from them as above described under the name *griseonucha*.

(2326) *Synallaxis propinqua* Pelz.

Synallaxis propinqua PELZ., Sitz. Ak. Wien., XXXIV, 1859, p. 101 (Brazil).

Anabates pulvericolor, SCL., 1858a, p. 62 (Napo); 1858d, p. 145 (Rio Napo).

RANGE.—Tropical Zone; upper Amazonia.

Recorded from eastern Ecuador by Sclater. I have seen only an Iquitos (Peru) specimen.

(2327) *Synallaxis stictothorax stictothorax* Scl.

Synallaxis stictothorax SCL., P. Z. S., 1859, p. 191 (Guayaquil); Tacz., 1877, pp. 323, 751 (Tumbez); B. & T., 1883, p. 560 (Guayaquil); S. & F., 1899b, p. 20 (Savana de Guayaquil).

Bahia de Caraques, 1 ♂, 2 ♀, 2 ?; Machalilla, 2 ♂, 1 ♀; Santa Elena, 3 ♂, 1 ♀; Daule, 1 ♂; Guayaquil, 1 ♂, 2 ♀ (topotypes); Puna Is., 4 ♂, 3 ♀, 1 ?.

RANGE.—Arid Tropical Zone: the species, Pacasmayo, and valley of the Marañon, Peru, to Bahia de Caraques, Ecuador; the race, Bahia de Caraques south to Peruvian border (?).

A distinct form the origin of which is obscure. None of our Ecuadorean specimens shows an approach toward the Peruvian race, *S. s. maculata* Lawr., and the area of intergradation between the two forms remains to be determined. The Marañon form, *S. s. chinchipensis* Chapm., is strongly marked.

(2331) *Synallaxis tithys* Tacz.

Synallaxis tithys TACZ., P. Z. S., 1877, p. 323 (Lechugal).

Chongon Hills, 1 ♂; Daule, 1 ♀; Guayaquil, 1 ♀; Santa Rosa, 1 ♀, 1 ♂, 1 ?; Guainche, 1 ♀.

RANGE.—Equatorial Arid Fauna.

A very distinct species with no near allies.

(2335) *Synallaxis unirufa unirufa* Lafr.

Synallaxis unirufa LAFR., Rev. Zoöl., 1843, p. 290 (Bogotá); S. & F., 1899b, p. 20 (Pun).

Above Baeza, 3 ♂, 1 ♀; Oyacachi, 1 ♂; Zuna, Rio Upano (7,000 ft.), 1.

RANGE.—Humid Temperate and upper Subtropical Zones: the species, from Peru to Venezuela; the race, Peru through eastern Ecuador to Colombia.

Ecuadorean specimens average slightly darker than others from the Bogotá region. A specimen from Rumicruz, Department Junin, Peru, whence the species has apparently not before been recorded, is not separable from the rest of our series. Besides *S. fuscorufa* of the Santa Marta group, no near allies of this species are known.

(2345a) *Synallaxis gularis gularis* Lafr.

Synallaxis gularis LAFR., Rev. Zoöl., 1843, p. 290 (Colombia); SCL., 1860c, p. 89 (Nanegal); GOODF., 1902, p. 60 (w. Corazon, 10,000 ft.); MEN., 1911, p. 40 (Lloa; Nono); L. & R., 1922, p. 69 (Nono; Pichincha).

Synallaxis gularis pichinchæ STONE, Proc. Acad. Nat. Sci. Phila., LXIV, 1912, p. 365 (Pichincha).

Hacienda Garzon (Rhoads).

Pichincha, 5 ♂, 5 ♀, 2 ?; Yanacocha, 1 ♂, 1 ♀; Verdecocha, 1 ♂, 2 ♀; Oyacachi, 1 ♂, 1 ♀; upper Sumaco, 2 ♂, 3 ♀.

RANGE.—Humid Temperate Zone: the species, Peru to Venezuela; the race, Ecuador and Colombia.

There is much individual variation in color in this species, particularly in the upperparts, and this fact, as well as the deceptive characters of old Bogotá skins, misled Dr. Stone into describing the Ecuadorean bird as new, just as it induced me to describe as *S. g. rufipectus*, the bird of the north Central Andes. As a matter of fact, examination of the material now available (41 specimens), including a recently collected specimen from El Piñon near Bogotá, convinces me that only one form occurs in northern Ecuador and Colombia. I have not seen *rufiventris* of the Maraynioc (Peru) region.

Dr. Hellmayr, however, recognizes both *rufipectus* and *pichinchæ*, the latter with reservations.

(2356) *Cranioleuca gutturata* (Lafr. & d'Orb.)

Anabates gutturalatus LAFR. & D'ORB., Syn. Av., II, 1838, p. 14 (Yuracares, Bol.); SCL., 1858a, p. 62 (Napo).

Synallaxis hyposticta, SCL., Cat. Bds. B. M., XV, 1890, p. 61 (Sarayacu—Buckley).

Rio Suno, 5 ♂, 7 ♀; below San José, 3 ♂, 4 ♀.

RANGE.—Tropical Zone; Bolivia to the lower Orinoco.

These Ecuadorean birds are more olive above than four from Bolivia, but the latter are matched by one from the upper Orinoco (Mt. Duida) and another from the lower Orinoco (Caura). Pelzeln's *hyposticta* was based on a Rio Negro specimen, and until the status of the interior form can be determined, it seems unwise to describe the Ecuadorean bird. The more northern birds are slightly smaller than those from Bolivia.

(2358) *Cranioleuca antisiensis antisiensis* (Scl.)

Synallaxis antisiensis SCL., P. Z. S., 1858, p. 457 (Cuenca, Ec.).

Above Zaruma, 1 ♂, 2 ♀, 1 ?; Alamor, 8 ♂, 1 ?; Celica, 3 ♂.

RANGE.—Subtropical Zone: the species, southwestern Ecuador to northwestern Peru; the race, southwestern Ecuador.

Some of the more southern specimens approach the paler *C. a. palamblæ* of northwestern Peru.

There is a striking resemblance between this species and *C. pallida* of southeastern Brazil.

(2363a) *Cranioleuca curtata griseipectus* Chapm.

Cranioleuca curtata griseipectus CHAPM., Am. Mus. Novit., No. 123, 1924, p. 8 (below Oyacachi, Ec.).

Below Oyacachi, 7 ♂, 2 ♀; Rio Sardinas, 1 ♀ ad.; below San José de Sumaco, 3 ♀.

Subspecific Characters.—Similar to *Cranioleuca curtata curtata* (Scl.) of the Bogotá region, but crown, tail, and wings externally chestnut rather than Sanford's brown, the back darker, the underparts grayer, less ochraceous, and obscurely streaked.

RANGE.—Subtropical Zone: the species, Bolivia to Colombia; the race, eastern Ecuador and southeastern Colombia.

(2365) *Cranioleuca erythrops erythrops* (Scl.)

Synallaxis erythrops SCL., P. Z. S., 1860, p. 66 (Pallatanga, Ec.); B. & T., 1883, p. 560 (Cayandede); 1884, p. 298 (Cayandede; Pedregal); GOODF., 1902, p. 60 (Intac; Guala; San Nicolas).

Siptornis erythrops, S. & F., 1899b, p. 21 (Guala); MEN., 1911, p. 41 (Mindo; Guala).

Junction Chanchan and Chiguancay (Rhoads).

Mindo, 4 ♂, 1 ♀, 1 ?; Rios Coco and Chimbo, 1 ♂; Chimbo, 1 ♂.

RANGE.—Subtropical Zone: the species, western Ecuador to Costa Rica; the race, western Ecuador and western Colombia.

Lacking specimens of true *erythrops*, I referred our Colombian specimens (including five topotypes) to *erythrops griseigularis* Ridgw., but the material now in hand does not show the characters attributed to that form, topotypes of it agreeing closely with topotypical specimens of *erythrops erythrops*. The Costa Rican race, *rufigenis*, differs from the Ecuadorean bird chiefly in its more rufescent back and underparts.

(2367) *Siptornis striaticollis* (Laf.)

Synallaxis striaticollis LAFR., Rev. Zool., 1843, p. 290 (Bogotá); B. & T., 1885, p. 95 (Mapoto).

RANGE.—Subtropical Zone, eastern Andes of Ecuador and Colombia.

We have no Ecuadorean specimens of this distinct species.

(2397a) *Asthenes graminicola azuay* (Chapm.)

Siptornis graminicola azuay CHAPM., Am. Mus. Novit., No. 86, 1923, p. 13 (Bestion, Ec.).

Bestion, 1 ♂ (type).

Subspecific Characters.—Similar to *Siptornis graminicola graminicola* Scl., of central Peru, but black streaks on the upperparts darker and wider; chin-patch deeper; rufous margins of the wings brighter; all the wing-coverts bright cinnamon-rufous; fourth tail-feather blackish only on the inner border of the inner web; wing and tail slightly shorter; bill longer. Wing 65 mm.; tail 75 mm.; culmen 18.5 mm.

RANGE.—Arid Temperate and Paramo Zones: the species, Ecuador to Peru; the race, southern Ecuador.

Instead of this form approaching *wyatti æquatorialis*, that race is more like true *graminicola* than the present one.

(2399a) *Asthenes wyatti æquatorialis* (Chapm.)

Siptornis wyatti æquatorialis CHAPM., Am. Mus. Novit., No. 18, 1921, p. 4 (Chimborazo).

Synallaxis wyatti, B. & T., 1884, p. 299 (Cechce).

Siptornis wyatti, S. & F., 1899b, p. 22 (Chaupi).

Chimborazo, 3 ♂, 3 ♀.

Subspecific Characters.—Similar to *Siptornis wyatti wyatti* but all the dark areas above, including the central tail-feathers, much blacker, the feathers of the back margined with grayish instead of with brownish.

RANGE.—Paramo Zone: the species, from central Ecuador to Santa Marta, Col.; the race, locally in the West Andes of central Ecuador.

It is worthy of note that there appear to be wide gaps in the ranges of this species and *Cinclodes albidiventris*, both Paramo Zone birds evidently of southern origin. *Asthenes wyatti* is known only from three localities in Ecuador, from the northern Central Andes and the Santa Marta group in Colombia. *Cinclodes* has not been recorded from the East Andes of Colombia but, like *Asthenes wyatti*, is found in the comparatively isolated Santa Marta group and in the Méridan Andes of Venezuela. This species appears to be a representative of the *graminicola-punensis* group; the occurrence between it and *graminicola* of a form (*A. g. azuay*) which is less like that bird than is *wyatti* indicates their non-intergradation.

(2401a) *Asthenes flammulata flammulata* (Jard.)

Synallaxis flammulata JARD., Contrib. to Orn., 1850, p. 82, pl. 56 (Quito, Ec.)

Synallaxis flammulata, SCL., 1860b, p. 76 (Panza); B. & T., 1885, p. 95 (Chimborazo; San Rafael); GOODF., 1902, p. 60 (Pichincha, 11,500 ft.).

Siptornis flammulata, HART., 1898, p. 490 (Mt. Cayambe); S. & F., 1899b, p. 22 (Pichincha); MEN., 1911, p. 41 (crater Pichincha; Mozo Pichincha); RHOADS, 1912, p. 143 (Paramo of Pichincha), L. & R., 1922, p. 69 (Pichincha, 12,000 to 13,000 ft.).

Hacienda Garzon; camp on Pichincha, 13,800 ft. (Rhoads).

Pichincha, 4 ♂, 1 ♀; Antisana, 1 ♂; El Corazon, 1 ♂, 1 ♀; Chimborazo, 1 ♂; Urbina, 1 ♂, 2 ♀; Taraguacocha, 1 ♂, 2 ♀; Bestion, 1 ♂; above Cerro Huamani, 2 ♂; above Oyacachi, 1 ♂.

RANGE.—Paramo Zone: the species, Peru to Colombia; the race, Ecuador.

More closely related to *A. f. quindiana* of the Central Andes of Colombia than to *multo-striata* of the Bogotá region. Of the characters mentioned in the original description, study of a larger series shows that those of the forehead, auricular region, and throat are the most pronounced and constant.

(2405) ***Metopothrix aurantiacus* Scl. & Salv.**

Metopothrix aurantiacus SCL. & SALV., P. Z. S., 1866, p. 190, pl. xviii (Sarayacu, Peru); SCL., Cat. Bds. B. M., XIV, 1888, p. 292. (Sarayacu, Ec.—Buckley.)

RANGE.—Tropical Zone; southeastern Colombia to northeastern Peru.

I have seen one specimen of this species from Sarayacu, Ecuador.

(2407) ***Xenerpestes singularis* (Berl. & Tacz.)**

Synallaxis singularis BERL. & TACZ., P. Z. S., 1885, p. 96, pl. vii, fig. 2 (Mapoto, Ec.); BERL., Ibis, 1903, p. 106 (crit.).

RANGE.—Eastern Ecuador.

This species is known only from the type in the Warsaw Museum. It is apparently a representative of *X. minlosi* described from the Bucaramanga region of Colombia, and of which we have a specimen from Citaro on the Cupe River in eastern Panama.

(2408) ***Pseudocolaptes boissonneauti boissonneauti* (Laf.)**

Anabates boissonneauti LAFR., Rev. Zoöl., 1840, p. 104 (Bogotá).

Pseudocolaptes boissonneauti, SCL., 1860c, p. 88 (above Puellarro); B. & T., 1884, p. 299 (La Union); S. & F., 1899b, p. 22 (Huaca; Pelagallo; Frutillas; Chaupi); GOODF., 1902, p. 60 (Pichincha; Corazon).

Pseudocolaptes boissonneauti, MEN., 1911, p. 41 ("Gualea"); L. & R., 1922, p. 69 (above Mindo; road to Nanegal; road to Gualea).

Pseudocolaptes boissonneauti oberholseri CORY, Auk, 36, 1919, p. 275 (Quito) Chunchi (Rhoads).

'Quito,' 2 ♂; above Nanegal, 2 ♂; above Mindo, 1 ♂; above Guala, 4 ♂, 2 ♀.

RANGE.—Humid Temperate Zone: the species, Bolivia to Venezuela; a close ally in Costa Rica and Chiriqui; the race, Colombia and northwestern Ecuador.

Immature birds have the back only slightly darker than the rump and unstreaked, the abdominal region somewhat paler (but much darker than in the adult), the feathers narrowly edged with blackish, while the neck-tufts are buffy. In the latter respect, as well as in pattern, they thus resemble *P. lawrencei* of Costa Rica and Chiriqui. The wing in these specimens averages slightly longer than in Colombian birds, but in other respects they resemble true *boissonneauti* of which we have a fair series. So far as our material goes, therefore, there is no ground for the recognition of *P. b. oberholseri* Cory.

(2408a) *Pseudocolaptes boissonneauti johnsoni* Lönn. & Rendh.

Pseudocolaptes johnsoni LÖNN. & RENDH., Arkiv. für Zool., Band 14, No. 25, 1922, p. 69 (Baeza).

Pseudocolaptes boissonneauti, B. & T., 1885, p. 96 (San Rafael); S. & F., 1899b, p. 22 (Pun); GOODF., 1902, p. 60 (Valleviciosa, 12,000 to 14,500 ft.).

Pseudocolaptes boissonneauti, L. & R., (below Papallacta).

Above Baeza, 3 ♂, 2 ♀; Baeza, 1 ♂, 1 ♀; below Papallacta, 1 ♂, 1 ♀; Oyacachi, 1 ♂, 1 ♀; upper Sumaco, 4 ♂, 1 ♀.

RANGE.—Humid Temperate Zone, eastern Ecuador.

This race differs from true *boissonneauti* in its paler rump and underparts, less rufescent, more olivaceous back with ochraceous-buff instead of ochraceous-orange shaft-stripes. It thus more closely resembles *P. b. intermedianus* than it does *boissonneauti*, whereas, in view of the greater humidity prevailing in its range, we should expect it to be more intensely rather than less intensely colored than *boissonneauti*.

Although Lönnberg and Rendahl accord this form specific rank, its close relationship to *boissonneauti* is indicated by their reference to that race of an essentially toptotypical example of *johnsoni* from below Papallacta.

(2408b) *Pseudocolaptes boissonneauti intermedianus* Chapm.

Pseudocolaptes boissonneauti intermedianus CHAPM., Am. Mus. Novit., No. 86, 1923, p. 14 (El Tambo, West Andes, Dept. Piura, Peru).

Taraguacocha, 2 ♂, 2 ♀; Salvias, 1 ♂; San Bartolo, 1 ♂; Loja, 1 ♂; ? El Chiral, 1 ? juv.

Subspecific Characters.—Most closely resembling *Pseudocolaptes boissonneauti johnsoni* Lönn. and Rend., of the Temperate Zone of eastern Ecuador, but crown

more abruptly defined from back, the nuchal region and foreback less heavily margined with black; the bill shorter. Similar to *P. b. boissonneauti* (Lafr.), of the Temperate Zone of Colombia and northwestern Ecuador, but underparts and rump paler in color; back more olivaceous, the shaft-streaks ochraceous-buff rather than ochraceous-orange; size, larger. In general tone of coloration resembling *P. b. medianus* Hellm. of central interior Peru, but throat white, not tinged with sulphur, and bill longer.

RANGE.—Temperate Zone, southwestern Ecuador and northwestern Peru.

In general coloration this race resembles *P. b. medianus* Hellm. of interior central Peru, but it has a white instead of yellow-tinged throat and a longer bill. It is, however, a link in the chain which apparently joins *auritus* with *boissonneauti*.

(2429a) **Thripophaga fusciceps obidensis** Todd

Thripophaga fusciceps obidensis TODD, Proc. Biol. Soc. Wash., XXXVIII, 1925, p. 80 (Obidos, Rio Amazon).

Below San José, 1 ♀.

RANGE.—Tropical Zone: the species, Bolivia to Ecuador and the lower Amazon; the race, eastern Ecuador to the lower Amazon.

Compared with the type and five topotypes of *T. f. obidensis* Todd, kindly loaned me by Mr. Todd, our Ecuadorean specimen is slightly smaller, its color anteriorly is slightly paler, the bill is yellowish instead of largely bluish horn-color. Possibly these differences are racial but, at the best, the Ecuadorean bird is obviously very near the lower Amazonian form. From a southeastern Peruvian example it differs, consequently, much as *obidensis* does.

(2432a) **Hylocryptus erythrocephalus** Chapm. (Plate XXVIII)

Hylocryptus erythrocephalus CHAPM., Proc. Biol. Soc. Wash., XXXII, 1919, p. 259 (Alamor, Ec.).

La Puente, 1 ♂; Alamor, 1 ♀. Peru: Paletillas, 2 ♀; Palambra, Peru, 1 ♂, 3 ♀.

RANGE.—Subtropical Zone; northwestern Peru and southwestern Ecuador.

Generic Characters.—A typically furnariine bird; the difference in length between the inner and outer toes less than the difference between the latter and the middle toe; the nostril-entrance oval, non-operculate; apparently most nearly related to *Automolus* but with a longer, proportionately more slender bill, the gonydeal angle barely evident, the maxilla as well as mandible terminally decurved, the culmen from base decidedly longer than tarsus, its depth at the gonydeal angle less instead of more than three times its length from nostril. Type, *Hylocryptus erythrocephalus*.



1. XENOPS TENUIROSTRIS ACUTIROSTRIS CHAPM.
2. HYLOCRYPTUS ERYTHROCEPHALUS CHAPM.
3. MYRMODERUS GRISEICEPS CHAPM.

Specific Characters.—In general coloration somewhat suggesting the *Automolus rubiginosus-nigricauda* group, but whole head and neck orange-rufous, sharply defined in color from rest of the body; underparts grayish olive, etc.

A distinct generic type known only from southwestern Ecuador and northwestern Peru where its occurrence serves still further to emphasize the strongly marked faunal features of that region. Since its description we have received four specimens from Palambla, Peru.

(2434) ***Thripadectes holostictus* (Scl. & Salv.)**

Automolus holostictus SCL. & SALV., P. Z. S., 1875, p. 542 (Frontino, Col.); S. & F., 1899, p. 22 (Niebli).

Automolus holostictus striatidorsus B. & T., 1884, p. 299 (Cayandede; Chaguarpata).

Pallatanga, 1 ♂; Baeza, 1 ♀.

RANGE.—Subtropical Zone; eastern Bolivia and Peru; eastern and western Ecuador; all three Andean ranges in Colombia.

Fourteen specimens from throughout the range of the species (except western Ecuador) present no apparent racial variation, but a male from Pallatanga is slightly less olivaceous on the abdomen and has a thicker bill than the remaining specimens. The status of *striatidorsus* therefore remains to be determined.

(2435) ***Thripadectes ignobilis* Scl. & Salv.**

Automolus ignobilis SCL. & SALV., P. Z. S., 1879, p. 522 (Frontino, Antioquia); B. & T., 1884, p. 300 (Cayandede); S. & F., 1899b, p. 22 (Gualea).

Below Mindo, 1 ♂, 3 ♀.

RANGE.—Subtropical Zone, western Ecuador and western Colombia.

These specimens agree with two from western Colombia. While this species may be better placed in *Thripadectes* than in *Automolus*, it does not seem to me to belong in either group.

(2436) ***Thripadectes melanorhynchus* (Tsch.)**

Anabates melanorhynchus TSCH., Arch. für Naturg., I, 1844, p. 295 (Peru); SCL., 1858a, p. 61 (Napo).

Automolus striaticeps, B. & T., 1885, p. 96 (Machay; Mapoto); S. & F., 1899b, p. 22 (Valle del Zamora).

Near Macas, 1 ♂; below San José, 3 ♂; lower Sumaco, 2 ♀.

RANGE.—Subtropical Zone; Bolivia to eastern Colombia.

I have seen no Peruvian specimens.

(2477) ***Thripadectes flammulatus flammulatus* (Eyton)**

Anabates flammulatus EYTON, Contr. Orn., 1849, p. 131 (Bogotá).

Thripadectes flammulatus, GOODF., 1902, p. 61 ("Gualea"); L. & R., 1922, p. 70 (roads to Mindo and Nanegal).

Hacienda Garzon, 10,700 ft. (Rhoads).

Yanacocha, 1 ♂; Verdecocha, 1 ♂; above Mindo, 1 ♂; Tambillo, 1 ♂; Rio Upano (6,500 ft.), 1; upper Sumaco, 1 ♀.

RANGE.—Humid Temperate Zone: the species, Peru to Venezuela; the race, the same, excluding Venezuela (I have seen only Ecuadorean and Colombian specimens).

These specimens agree with others from Colombia.

(2479) ***Thripadectes virgaticeps virgaticeps* Lawr.**

Thripadectes virgaticeps LAWR., Ann. Lyc. Nat. Hist. N. Y., X, 1874, p. 398 (Quito, Ec.).

Automolus brooki CHUBB, Bull. B. O. C., XXXVI, 1917, p. 47 (Gualea—type examined).

'Quito,' the type; near Gualea, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone: the species, Ecuador and western Colombia; the race, northwestern Ecuador. Represented in Costa Rica by *T. rufobrunneus* and in Venezuela by *T. klagesi*.

I have previously given reasons for my belief that this form intergrades with *sclateri* in southwestern Colombia (Bull. Amer. Mus. Nat. Hist., XXXVI, p. 412).

(2479a) ***Thripadectes virgaticeps sumaco* Chapm.**

Thripadectes virgaticeps sumaco CHAPM., Amer. Mus. Novit., No. 187, 1925, p. 3 (Sumaco, Ec.).

Sumaco, 3 ♂; Baeza, 1 ♀.

RANGE.—Subtropical Zone; eastern Ecuador.

Subspecific Characters.—Resembling *Thripadectes virgaticeps virgaticeps* LAWR. of the Subtropical Zone of western Ecuador, but the wing and bill shorter; the tail of nearly the same length; upperparts somewhat more olivaceous; the crown less sharply defined from the back, its streaks extending to the nape; exterior margins of wing-quills, the wing-coverts, and tertials less rufous; underparts, and particularly under tail-coverts, paler, less rufous. Nearer *Thripadectes virgaticeps sclateri* BERL. of the Subtropical Zone of western Colombia in size, but differing from it in color as it does from true *virgaticeps*.

(2437) *Hyloctistes subulatus subulatus* (Spix)

Sphenura subulata SPIX, Av. Bras., I, 1824, p. 82, pl. lxxxiii, fig. i ("in sylvis flum. Amazonum").

Automolus subulatus, GOODF., 1902, p. 61 (Rio Suno; Rio Coca).

Rio Suno, 9 ♂, 7 ♀; below San José, 1 ♂, 4 ♀.

RANGE.—Tropical Zone: the species, Peru to eastern Panama and western Ecuador; the race, upper Amazonia.

I have seen no topotypical specimens. Hellmayr (Nov. Zoöl., 1910, p. 320) describes the differences between this form and *subulatus assimilis*. It should also be noted that the bill in *assimilis* is stouter, more convex, less subulate than in *subulatus*.

(2438) *Hyloctistes subulatus assimilis* (Berl. & Tacz.)

Automolus assimilis BERL. & TACZ., P. Z. S., 1883, p. 561 (Chimbo, Ec.); HART., 1898, p. 491 (Chimbo).

Rio de Oro, 1 ♀; ? Chimbo, 1 ♂.

RANGE.—Tropical Zone, western Ecuador to eastern Panama.

The Rio de Oro specimen agrees with a series from western Colombia and eastern Panama, but the Chimbo bird, which is apparently not quite mature, is more olivaceous, less rufescent both above and below than any other of our thirteen specimens, including one from Nóvita, Col., of the same age.

Hellmayr (P. Z. S., 1911, p. 1150) considers this bird to be sub-specifically related to *Hyloctistes virgatus* Ridgw. but now having specimens of that bird for comparison I should not place them in the same genus—an interesting illustration of the part individual opinion must of necessity play in classification.

Doubtless this species is not properly referable to the restricted genus *Automolus*, and I provisionally refer it to *Hyloctistes* pending a revision of the group to which both it and *Hyloctistes virgatus* belong.

(2440a) *Automolus ruficollis* (Tacz.)

Anabazenops ruficollis TACZ., Orn. Per., II, 1884, p. 160 (Paucal, Peru).

Automolus celicæ CHAPM., Am. Mus. Novit., No. 18, 1921, p. 10 (Celica, Ec.).

Celica, 6 ♂, 2 ♀; Alamor, 1 ♂, 2 ♀; Guachanamá, 1 ♂; Cebollal, 1 ♂.

Specific Characters.—Not closely related to any recognized species of *Automolus*; possibly nearest *A. cervinigularis*, but feathers of the crown less elongate and browner; underparts streaked, etc.; with a general resemblance to *Philydor tem-*

poralis Scl., but bill much larger. Crown Brussels-brown instead of olive; throat washed with buff, sides of the neck clear ochraceous orange.

RANGE.—Subtropical Zone, southwestern Ecuador and northwestern Peru, south to Paucal.

A member of the group of distinct species which characterize the southern end of the Subtropical Zone on the Pacific slope. We also have specimens of this species from Palambla and El Tambo, Peru. Dr. Hellmayr, who has examined Taczanowski's type, calls my attention to the fact that my *Automolus celicæ* is a synonym of the hitherto overlooked *Anabazenops ruficollis* Tacz. (See Addenda.)

(2441). *Automolus ochrolæmus turdinus* (Pelz.)

Anabates turdinus PELZ., Sitz. Ak. Wien., XXXIX, 1859, p. 110 (Rio Negro).
Rio Suno, 4 ♀; below San José, 2 ♂.

RANGE.—Tropical Zone: the species, Bolivia to Guiana; the race, lower Amazon to eastern Ecuador and Colombia.

Ecuadorean specimens, as a whole, are nearer those from the lower Amazon (Faro; Tapajoz) than to a series of true *ochrolæmus* from La Merced (Peru) to Bolivia, but in their more ochraceous throat or more deeply colored underparts some Ecuadorean birds show an approach to the latter. Colombian birds have the paler throat of those from the lower Amazon, but have the crown somewhat more olivaceous. This species is apparently represented in western Colombia, western Ecuador, and Central America by *Automolus pallidigularis*.

(2442) *Automolus melanopezus* (Scl.)

Anabates melanopezus SCL., P. Z. S., 1858, p. 61 (Napo, Ec.); 1858d, p. 144 (Rio Napo).

Napo, 1; Rio Suno, 8 ♂, 2 ♀; below San José, 4 ♂, 1 ♀.

RANGE.—Tropical Zone, eastern Ecuador.

Our Napo specimen, identified by Sclater, is somewhat more rufous than any of the other birds in the series, a difference possibly due to its age as a skin. In general tone of color this species resembles *A. ochrolæmus turdinus*, but lacks any suggestion of streaking on the throat and is without a superciliary line or a buff eye-ring.

(2444) *Automolus pallidigularis pallidigularis* Lawr.

Automolus pallidigularis LAWR., Ann. Lyc. Nat. Hist., N. Y., VII, 1862, p. 465 (Lion Hill, Panama); S. & F., 1899b, p. 22 (Rio Peripa).

Automolus pallidigularis albidior HART., Nov. Zoöl., VIII, 1901, p. 369 (San Javier, n. w. Ec.).

Esmeraldas, 1 ♀, 1 ?; Rio de Oro, 2 ♂, 3 ♀.

RANGE.—Tropical Zone: the species, western Ecuador to Costa Rica; the race, western Ecuador to central Panama.

I am unable to separate our Ecuadorean specimens from the type of *pallidigularis* and a large series from eastern Panama. Goodfellow's record of this species from the upper Napo (Ibis, 1902, p. 61) evidently refers to some other species.

(2445) *Automolus dorsalis* Scl. & Salv.

Automolus dorsalis SCL. & SALV., P. Z. S., 1880, p. 158 (Sarayacu, Ec.).

Zamora, 2 ♂, 1 ?; Rio Suno, 1 ♂, 4 ♀; below San José, 1 ♀.

RANGE.—Tropical Zone; eastern Ecuador and southeastern Colombia.

Two of these specimens have the superciliaries orange-ochraceous and the nape and underparts washed with this color, while in the others the underparts are white tinged with yellowish buff and with more or less or no ochraceous in the superciliaries. These differences are evidently individual and are probably due to age. In general coloration these birds are nearly as bright above as *A. leucophthalmus* but have the flanks washed with olive. I have seen no authentic material.

(2447) *Automolus infuscatus infuscatus* (Scl.)

Anabates infuscatus SCL., Ann. & Mag. Nat. Hist. (2), XVII, 1856, p. 468 (e. Peru); 1858a, p. 61 (Napo).

Automolus sclateri, SCL., Cat. Bds. B. M., XV, 1890, p. 95 (Napo; Sarayacu).

Rio Suno, 1 ♂, 2 ♀.

RANGE.—Tropical Zone: the species, Amazonia, chiefly north of the Amazon; the race, eastern Peru to eastern Colombia.

We have no topotypical specimens.

(2450) *Automolus nigricauda nigricauda* Hart.

Automolus nigricauda HART., Bull. B. O. C., VII, 1898, p. xxx (Cachabi); 1898, p. 491 (Cachavi); 1902, p. 616 (Paramba; Rio Sapayo).

Rio de Oro, 1 ♂; Bucay, 1 ♀; Santa Rosa, 1 ♂.

RANGE.—Tropical Zone: the species, western Ecuador to the lower Magdalena in Colombia (Colombian-Pacific Fauna); the race, western Ecuador and southwestern Colombia.

Represented in eastern Ecuador by *A. cinnamomeigula*, which has also been recorded from southeastern Colombia.

(2454) ***Automolus cinnamomeigula* Hellm.**

Automolus cinnamomeigula HELLM., Bull. B. O. C., XV, 1905, p. 55 (Bogotá).

Rio Suno, 4 ♂; below San José, 2 ♀.

RANGE.—Tropical Zone; eastern Colombia and eastern Ecuador.

These two specimens are slightly darker throughout than three from La Morelia, southeastern Colombia, but I should prefer to see a larger series before suggesting their separation. The type of *cinnamomeigula* should also be examined, for in spite of the fact that I suggested La Morelia as the definite type-locality, I have since come to the conclusion that this procedure is warranted only when the type (if any exists) has been examined.

(2463a) ***Automolus rufipileatus consobrinus* (Scl.)**

Philydor consobrinus SCL., P. Z. S., 1870, p. 328 ("Bogotá").

Automolus pallidigularis, GOODF., 1902, p. 61 (upper Napo).

RANGE.—Tropical Zone: the species northern South America; the race, Guiana to eastern Ecuador and northern Peru.

We have no specimens from Ecuador.

(2461) ***Philydor columbianus riveti* Men. & Hellm.**

Philydor columbianus riveti MEN. & HELLM., Mem. Soc. d'Hist. d'Autun, XIX, 1906, p. 49 (Guala, Ec.); MEN., 1911, p. 42, pl. 4 (Guala).

Philydor columbianus, GOODF., 1902, p. 61 (Intac).

Guala, 1 ♂; Mindo, 1 ♂.

RANGE.—Subtropical Zone; the race, western Ecuador.

I have no specimens of true *columbianus* with which to compare our Ecuadorean specimens. Some form of this species doubtless exists in eastern Ecuador whence I have seen no examples. This bird does not impress me as being racially related to *P. rufus*.

(2462) **Philydor erythropterus** (Scl.)

Anabates erythropterus SCL., 1856, p. 27 (Bogotá); 1858a, p. 61 (Napo).

Rio Suno, 2♂, 1♀.

RANGE.—Peru to Colombia; recorded only from eastern Ecuador.

These birds agree with two Bogotá specimens, one of which was identified by Sclater.

(2464) **Philydor pyrrhodes** (Cab.)

Anabates pyrrhodes CAB., in Schomb. Reise Guiana, 1848, p. 689 (British Guiana); SCL., 1858a, p. 62 (Napo).

Napo, 1; Rio Suno, 2♂, 1♀.

RANGE.—Tropical Zone, Amazonia.

Doubtless the Amazonian form of *P. erythronotus*.

(2467) **Philydor erythronotus** Scl. & Salv.

Philydor erythronotus SCL. & SALV., Nomen. Av. Neotr., 1873, p. 160 (Bogotá); B. & T., 1883, p. 561 (Chimbo).

Bucay (Rhoads).

Bucay, 1♂; Chimbo, 1.

RANGE.—Tropical Zone; western Ecuador, northern central Colombia and eastern Panama.

Our specimens agree with a series from eastern Panama. Represented in western Panama by *P. fuscipennis* and east of the Andes by *P. pyrrhodes*.

(2468) **Philydor ruficaudatus** (Lafr. & d'Orb.)

Anabates ruficaudatus LAFR. & D'ORB., Syn. Av., II, 1838, p. 15 (Yuracares, Bol.); Scl., 1858a, p. 61 (Napo).

Anabates ruficaudus, SCL., 1858b, p. 456 (Gualaquiza).

Philydor ruficaudatus, SCL., Cat. Bds. B. M., XV, 1890, p. 100 (Gualaquiza; Sarayacu); S. & F., 1899b, p. 23 (Rio Santiago).

Zamora, 2♂; Rio Suno, 6♂, 7♀; below San José, 2♂, 3♀.

RANGE.—Tropical Zone; French Guiana to Colombia and Bolivia.

Ecuadorean specimens agree with two from Bolivia. Immature specimens are more rufous above, more fulvous abdominally, and have the superciliary deep ochraceous; the throat, however, while slightly more fulvous, is essentially like that of the adult. They differ from the young of *P. subfulvus* in being much less rufous throughout.

Two specimens from La Morelia, southeastern Colombia, are deeper above, and may be separable.

(2470) *Philydor subfulvus* Scl.

Philydor subfulvus SCL., P. Z. S., 1861, p. 378 (Gualaquiza, Ec.; type examined).
Zamora, 1 ♂; Rio Suno, 2 ♂.

RANGE.—Tropical Zone; eastern Bolivia to eastern Ecuador.

Sclater's type of *Philydor subfulvus*, which I have examined in the British Museum, is in fresh winter plumage with the superciliaries deep ochraceous-orange, the underparts slightly paler, the upperparts dark brown.

Our specimens have been compared with it as well as with three specimens of "*ochrogaster*" (Rio Chimoré, Bol., 2; Marcapata, Peru, 1) which Hellmayr (Monograph) has shown is synonymous with *subfulvus*. The Marcapata bird, indeed, is labelled "*Philydor subfulvus* Scl." in the handwriting of von Berlepsch. Adults of this species have the superciliary and throat ochraceous-orange, the underparts the same but olive-tinted. Immature specimens have the throat paler, almost white; the crown and foreback less olivaceous.

(2472) *Xenicopsoides montanus montanus* (Tsch.)

Anabates montanus TSCH., Arch. für Naturg., 1844, I, p. 295 (Peru).

Philydor striaticollis, B. & T., 1885, p. 97 (Mapoto; Machay).

Sabanilla, 1 ♂, 1 ♀; Guayaba, 1 ♀; below Oyacachi, 1 ♂; below Rio Sardinas, 1 ♀; lower Sumaco, 4 ♂.

RANGE.—Subtropical Zone: the species, Bolivia to Venezuela; the race, eastern Ecuador to east central Peru.

Specimens from Oyacachi and Rio Sardinas are less rufous above than those from southern Ecuador, but, as a whole, Ecuadorean specimens are not separable from topotypes. The Colombian form (*striaticollis*) is paler above, with the upper tail-coverts perceptibly lighter than the back, the underparts less distinctly streaked. Although the species has been recorded from the western Andes of Colombia it is unknown from western Ecuador.

(2476) *Xenicopsoides temporalis* (Scl.)

Anabates temporalis SCL., P. Z. S., 1859, p. 141 (Pallatanga, Ec.); 1860f, p. 428 (Pallatanga).

Anabazenops temporalis, B. & T., 1883, p. 562 (Chimbo); 1884, p. 300 (Pedregal); GOODF., 1902, p. 61 (Intac).

Xenicopsis temporalis, MEN., 1911, p. 43 (Gualea); L. & R., 1922, p. 70 (Mindo).
Junction Chanchan and Chiguancay (Rhoads).

Mindo 1♂, 1♀; Rios Coco and Chimbo, 1♂ (topotype); El Chiral, 1♀; La Chonta, 3♂, 1♀; Alamor, 2♀.

RANGE.—Subtropical Zone; western Ecuador and western Colombia (Sclater in Cat. Bds. B. M., XV, p. 107, records it also from southern Peru and Bolivia).

Represented in Costa Rica and Chiriqui by *X. variegaticeps* and in eastern Ecuador by *X. montanus*.

(2481) **Ancistrops strigilatus** (Spix)

Thamnophilus strigilatus SPIX, Av. Bras., II, 1825, p. 26, pl. xxxvi, fig. 1 (e. Peru).

Anabates lineaticeps SCL., 1858a, p. 61 (Napo).

Ancistrops strigilatus, GOODF., 1902, p. 61 (Rio Coca).

Rio Suno, 5♀.

RANGE.—Tropical Zone; upper Amazonia.

These specimens agree with one from Peru and another from southeastern Colombia.

(2487) **Xenotistes subalaris subalaris** (Scl.)

Anabates subalaris SCL., P. Z. S., 1859, p. 141 (Pallatanga, Ec.); 1860f, p. 428 (Pallatanga).

Anabazenops subalaris, B. & T., 1884, p. 300 (Cayandeled; Pedregal; Surupata Chaguarpata); GOODF., 1902, p. 61 (w. Pichincha, 9,000 ft.).

Xenicopsis subalaris, MEN., 1911, p. 43 (Guailea).

Chunchi (Rhoads).

Below Mindo, 2; Rios Coco and Chimbo, 1♂; El Chiral, 4♂, 3♀, 1?; above Zaruma, 3♂, 2♀, 1?.

RANGE.—Subtropical Zone: the species, Ecuador to Costa Rica; the race, western Ecuador and western Colombia. Represented in northeastern Venezuela by *X. guttulatus*.

(2487a) **Xenotistes subalaris mentalis** (Tacz. & Berl.)

Anabazenops mentalis TACZ. & BERL., P. Z. S., 1885, p. 96 (Machay, e. Ec.).

Baeza, 2♂; lower Sumaco, 3♂, 2♀.

RANGE.—Subtropical Zone; eastern Ecuador.

While comparison in the British Museum of a co-type of *mentalis* from Machay with the type of *subalaris subalaris* confirms my belief in the validity of this race (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 414), I am by no means certain that eastern Colombian speci-

mens¹ should be referred to it. Specimens from Buena Vista, above Villavicencio, and La Candela, at the head of the Magdalena Valley, are paler below and have the throat-patch not only paler but much larger than in eastern Ecuadorean specimens. Three of the Sumaco birds are heavily marked with ochraceous-orange.

(2489) *Xenops minutus genibarbis* Ill.

Xenops genibarbis ILL., Prodr., 1811, p. 213 (Cametá, Brazil); 1858b, p. 457 (Gualaquiza).

Rio Suno, 4 ♂, 3 ♀; below San José, 3 ♂.

RANGE.—Tropical Zone: the species, Brazil to Mexico; the race, Para and Cayenne to Peru and Colombia.

Our Ecuadorean birds are more olivaceous above and have the crown more distinctly streaked than four from the lower Amazon. Bogotá specimens, however, agree with the latter, a fact to which Hellmayr has already called attention (Nov. Zööl., XIV, 1907, p. 54).

(2490) *Xenops minutus littoralis* Scl.

Xenops littoralis SCL., P. Z. S., 1861, p. 379 (Esmeraldas, Ec.); B. & T., 1883, p. 562 (Chimbo); S. & F., 1899b, p. 23 (Vinces; Rio Peripa).

Xenops genibarbis, SCL., 1860e, p. 293 (Esmeraldas); GOODF., 1902, p. 61 (Santo Domingo).

Xenops genibarbis littoralis, HART., 1898, p. 491 (Chimbo; Paramba).

Bucay (Rhoads).

Esmeraldas, 4 ♂, 3 ♀; Rio de Oro, 3 ♂, 3 ♀; Mindo, 1 ♀; Chongon Hills, 1 ♀; Bucay, 1 ♂; Naranjo, 1 ♂; Chimbo, 1 ♂.

RANGE.—Tropical Zone: the species, Brazil to southern Mexico; the race, western Ecuador to the Canal Zone.

I am unable to find any characters by which Panamá birds (*X. m. ridgwayi* Hart. & Goods.) may be separated.

(2493) *Xenops rutilus heterurus* Cab. & Heine

Xenops heterurus CAB. & HEINE, Mus. Heine, II, 1859, p. 33 (Colombia).

Xenops rutilus, B. & T., 1885, p. 97 (Machay); GOODF., 1902, p. 61 (Baeza).

Sabanilla, 1 ♂, 1 ♀; Zamora, 1 ♂; Baeza, 1 ♂, 1 ♀; Rio Suno, 1 ♂, 1 ♀.

RANGE.—Chiefly Subtropical Zone of southeastern Peru to Colombia and Costa Rica, east through the mountains of Venezuela to Trinidad.

¹ The eastern Colombian bird proves to be *Xenicopsis subalaris striolatus* Todd.

The distribution of *Xenops rutilus* gives us a clue to the manner in which zonal forms may arise. *Xenops rutilus rutilus* inhabits the Tropical Zone of southern Brazil and eastern Bolivia; *X. r. connectens* is found in Jujuy, northwestern Argentina, and the Subtropical Zone of Bolivia; *X. r. heterurus* occupies this zone from southeastern Peru north through eastern Ecuador (where it also occurs in the Tropical Zone) to all the ranges of Colombia when, like a number of other Subtropical species, it jumps the Tropical Zone of Panama to reappear in the subtropics of Chiriqui and Costa Rica. East from Colombia it passes through the subtropics of the Venezuelan Andes to reach the Tropical Zone in Trinidad and the Guianas. *Xenops r. guayæ* occupies the Subtropical Zone in southwestern Ecuador, but is known only from the tropics north of Guayaquil.

(2493a) *Xenops rutilus guayæ* Hellm.

Xenops rutilus guayæ HELLM., Anz. Ornith. Ges. Bayern, 1920, p. 18 (Guayaquil).

Xenops heterurus, S. & F., 1899b, p. 23 (Vinces).

Xenops rutilus, B. & T., 1883, p. 562 (Guayaquil).

Bucay; junction Chanchan and Chiguanca (Rhoads).

Esmeraldas, 2♂, 2♀; Chongon, 2♂; Naranjo, 1♂, 1♀; El Chiral, 2♂, 1♀; Portovelo, 1♂; Zaruma, 6♂, 1♀; Cebollal, 1♀.

RANGE.—Tropical Zone: the species, southern Brazil and Bolivia to Costa Rica; the race, western Ecuador.

A well-marked race, distinguished from *rutilus* by its greater rufescence, and from *heterurus* chiefly by having only two instead of four rectrices black or largely black. One specimen from Zaruma, however, has two rectrices on each side largely black and in this respect agrees with *heterurus*. Specimens from El Chiral southward are considerably larger than those from Guayas northward, a difference possibly due to the fact that the larger birds come from a higher altitude. This species is unknown from the Tropical Zone of western Colombia and may have reached western Ecuador *via* the Marañon route.

(2494a) *Xenops tenuirostris acutirostris* Chapm. (Plate XXVIII)

Xenops acutirostris CHAPM., Amer. Mus. Novit., No. 86, 1923, p. 16 (Zamora, Prov. Loja, Ec.).

Zamora, 1♂ ad. (type), 1♂ im.

RANGE.—Tropical Zone: the species, French Guiana to southeastern Peru and eastern Ecuador; the race, eastern Ecuador and northeastern Peru.

Specific Characters.—Most nearly related to *Xenops tenuirostris* Pelz. of the Madeira River region to southeastern Peru, but bill even more slender, the mandible not recurved, the bill, therefore, more as in *Microxenops* but more acute, the culmen straighter; general coloration of the upper and underparts much as in *Microxenops* but tail-pattern essentially as in *X. t. tenuirostris*.

Evidently a representative of *X. tenuirostris* with the gonys straight. Its occurrence at Zamora with *X. rutilus heterurus* indicates the specific distinctness of that form and *tenuirostris*.

(2499) *Sclerurus caudacutus brunneus* *Scl.*

Sclerurus brunneus SCL., P. Z. S., 1857, p. 17 ("Bogotá"); 1858a, p. 62 (Napo); S. & F., 1899b, p. 23 (Valle del Rio Santiago).

Sclerurus caudacutus brunneus, HELLM., Nov. Zoöl., XIV, 1907, p. 58 (Sarayacu). Rio Suno, 5♂, 7♀; below San José, 1♂, 1♀.

RANGE.—Tropical Zone: the species, east of the Andes; the race, upper Amazonia.

These specimens agree with five from southeastern Colombia, thus confirming Hellmayr's determination of eastern Ecuadorean birds (Nov. Zoöl. XIV, 1907, p. 56).

(2501a) *Sclerurus albigularis zamoræ* *Chapm.*

Sclerurus albigularis zamoræ CHAPM., Am. Mus. Novit., No. 86, 1923, p. 17 (Zamora).

Zamora, 1♂, 3♀; Guayaba, 1♀.

RANGE.—Tropical Zone: the species, Tobago and Trinidad to Costa Rica and eastern Peru; the race, eastern Ecuador to east central Peru.

Subspecific Characters.—Similar to *Sclerurus albigularis* Swains. of northern South America, but more intensely colored throughout; the throat grayish instead of whitish; the breast-band hazel instead of ochraceous-tawny; the upperparts auburn rather than raw-umber.

(2504) *Sclerurus mexicanus obscurior* *Hart.*

Sclerurus mexicanus obscurior HART., Nov. Zoöl., VIII, 1901, p. 370 (Lita, n. w. Ec.).

Rio de Oro, 1♂; El Chiral, 1♀; Zamora, 1♀; Rio Suno, 5♂, 3♀; below San José, 1♂, 1♀.

RANGE.—The species, Amazonia to Mexico; the race, Tropical and Subtropical Zones from Bolivia (?), eastern and western Ecuador, Colombia, and eastern Panama.

With specimens from eastern Panama (4), Colombia (5), Ecuador (9), and Rio Espiritu Santo, Bolivia (1), before me, I can discover no

variation which can be correlated with locality. Specimens from eastern and western Ecuador are certainly not separable, and one from Bolivia is almost identical with one from western Ecuador. In short, I reach the conclusions already presented (see Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 415). Hellmayr, however, recognizes six South American forms of this species.

(2506) *Sclerurus guatemalensis salvini* Salvad. & Festa

Sclerurus salvini SALVAD. & FESTA, Boll. Mus. Tor., XV, 1899, No. 362, p. 23 (Rio Peripa, Ec.).

Sclerurus guatemalensis salvini, HART., 1902, p. 612 (San Javier; Bulón).

Esmeraldas, 1 ♂; Rio de Oro, 3 ♂.

RANGE.—Tropical Zone: the species, Mexico to eastern Panama; the race, western Ecuador (and doubtless western Colombia).

Specimens from eastern Panama (Tapalisa; Rio Tuyra; etc.) agree with those of Nicaragua and show no indication of intergradation with *salvini*. If intergradation occurs it must do so, therefore, in western Colombia whence the species has not yet been recorded. This may possibly be the representative of the *S. caudacutus* group.

(2508) *Margarornis perlata* (Less.)

Sittasomus perlatus LESS., Echo du Monde Savant, 1844, p. 275 ("Bogotá").

Margarornis squamigera, SCL., 1858c, p. 553 (Titicun); 1860a, p. 66 (Chillanes); 1860c, p. 88 (above Puellaro).

Margarornis perlata, B. & T., 1884, p. 300 (Chaguarpata); 1885, p. 98 (Baños); S. & F., 1899b, p. 24 (Pun; El Troje; Chaupi; Futillas; Papallacta); GOODE, 1902, p. 62 (Pichincha and Papallacta, bushes in quebradas above 11,000 ft.); L. & R., 1922, p. 70 (above Lloa).

El Chiral, 1 ♂; Taraguacocha, 2 ♂, 2 ♀, 1 ?; Salvias, 2 ♂; Baeza, 2 ♂, 2 ♀; above Baeza, 2 ♂; above Papallacta, 1 ♀; Oyacachi, 4 ♂, 2 ♀; upper Sumaco, 4 ♂, 1 ♀; Macas region, 2.

RANGE.—Humid Temperate and upper Subtropical Zones, Peru to Venezuela.

Specimens from Peru (*M. p. peruviana* Cory) average yellower than those from Colombia, but too many birds from both countries are alike to warrant the recognition of two races.¹ Ecuadorean birds agree with those from Colombia.

¹ *M. p. peruviana* is, however, recognized by Hellmayr.

(2509) **Margarornis stellata** *Scl. & Salv.*

Margarornis stellata SCL. & SALV., Nomen. Av. Neotr., 1873, p. 160 (Quito); GOODF., 1902, p. 61 (Intac).

Pagma Forest (Rhoads).

RANGE.—Subtropical Zone; western Ecuador and western Colombia.

Possibly a representative of the quite distinct *M. rubiginosa* of the Subtropical Zone of Costa Rica and Chiriqui.

(2510) **Premnornis guttuligera** (*Scl.*)

Thripophaga guttuligera SCL., P. Z. S., 1864, p. 167 (Bogotá); GOODF., 1902, p. 60 (Papallacta).

Margarornis guttata LAW., Ann. Lyc. Nat. Hist. N. Y., VIII, 1867, p. 168 (Quito); S. & F., 1899b, p. 25 (Niebli); GOODF., 1902, p. 62 (Pichincha; Papallacta).

'Quito' (the type of *Margarornis guttata* Lawr.); Baeza, 1 ♂, 2 ♀; Sabanilla, 1 juv.; lower Sumaco, 5 ♂, 5 ♀.

RANGE.—Subtropical Zone, southern Peru to Colombia.

Adults have but few streaks on the back, while immature birds have broadly guttate markings above. Examination of both Sclater's and Lawrence's types by Dr. Hellmayr has revealed their identity.

(2512) **Premnoplex brunnescens brunnescens** (*Scl.*)

Margarornis brunnescens SCL., P. Z. S., 1856, p. 27, pl. cxvi ("Bogotá"); SCL., 1860c, p. 88 (Nanegal); B. & T., 1883, p. 563 (Chimbo); 1884, p. 300 (Cayandeled); 1885, p. 98 (Machay; Mapoto); S. & F., 1899b, p. 25 (Gualea); GOODF., 1902, p. 61 (Baeza).

Premnoplex brunnescens, MEN., 1911, p. 44 (Santo Domingo).

Mindo, 3 ♂, 1 ♀; El Chiral, 2 ♂, 1 ♀; above Zaruma, 2 ♂, 1 ♀, 1 ?; Salvias, 1 ♀; Zamora, 1 ♂; Macas region, 3 ?; San José de Sumaco, 1 ♂; below San José, 3 ♂, 4 ♀; lower Sumaco, 13 ♂, 6 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to Costa Rica and Venezuela; the race, Peru to Colombia; eastern and western Ecuador.

There is much variation in richness of coloring, particularly of the throat and breast, apparently due to age, but three adult specimens from the Macas region are more intensely colored than specimens from other localities and may represent an undescribed race.

FAMILY DENDROCOLAPTIDÆ. WOOD HEWERS

(2517) *Glyphorhynchus spirurus*¹ ? *castelnaudi* Des Murs

Glyphorhynchus castelnaudi DES MURS, Voy. Casteln., Ois., 1855, p. 47, pl. xv, fig. 2 (Santa Marta, Peru).

Glyphorhynchus cuneatus SCL., 1858a, p. 63 (Napo); S. & F., 1899, p. 25 (Gualaquiza; Valle del Rio Santiago; Valle del Zamora).

Glyphorhynchus cuneatus castelnaudi, B. & T., 1885, p. 89 (Mapoto).

RANGE.—Upper Amazon.

I have seen no specimens from eastern Ecuador. While *G. s. castelnaudi* may occur in the southeastern part of the country, it is probable that *G. s. pectoralis* (see below) is the form of northeastern Ecuador.

(2517a) *Glyphorhynchus spirurus pectoralis* Scl. & Salv.

Glyphorhynchus pectoralis SCL. & SALV., P. Z. S., 1860, p. 299 (Choctum, Vera Paz, Guatemala).

Glyphorhynchus cuneatus, GOODF., 1902, p. 62 (Santo Domingo).

Glyphorhynchus castelnaudi, SCL., 1859a, p. 141 (Pallatanga).

Glyphorhynchus cuneatus castelnaudi, B. & T., 1883, p. 563 (Chimbo); 1884, p. 300 (Cayandeled; Pedregal); HART., 1898, p. 491 (Cachaví); MEN., 1911, p. 44 (Santo Domingo).

Rio de Oro, 1 ♀, 1 ?; below Gualaea, 1 ?; Cerro Manglar Alto, 1 ♀; La Chonta, 1 ♂; Rio Suno, 5 ♂, 4 ♀; below San José, 4 ♂, 2 ♀; lower Sumaco, 1 ♀.

RANGE.—Tropical Zone: the species, Bolivia to Mexico; the race, north of the Amazon to Mexico.

Hartert and Goodson (Nov. Zoöl., XXIV, 1917, p. 419) have called attention to the marked differences which separate Cayenne specimens of *Glyphorhynchus* from true *spirurus* and have named the Cayenne form *simillimus*. I have three topotypes of this proposed form. From true *spirurus* they differ chiefly in having the throat and breast-stripes tawny rather than buff, in having the underparts generally more rufescent and the bill smaller. To this form its describers refer also specimens from British Guiana and the Lower Orinoco. From these localities, also, we have excellent series, the localities north of the Amazon and east of the Andes represented in our collection, with the number of specimens from each, being as follows: Cayenne, 4; British Guiana (Potaro River), 22; Lower Orinoco (La Union; Suapure), 5; upper Ori-

¹ Cf. Hellmayr, who recognizes five races of this species.

noco (ft. of Mt. Duida), 4; Villavicencio, Col., 1; La Morelia and Florencia, Col., 5; Rio Suno, Ec., 5.

All these specimens have the tawny throat and breast-stripes of the Cayenne bird, but there is a certain amount of local variation. Thus, British Guiana birds are less rufescent below, have darker crowns and larger bills, than those from Cayenne. Lower Orinoco birds agree with Cayenne birds in general color but have few or no black margins on the throat and bills like those of British Guiana birds; while southeastern Colombian and eastern Ecuadorean specimens average deeper in color than any of the others and have bills like those of Orinoco and Guiana birds. In short, aside from the slightly smaller bills of the Cayenne birds, there is nothing to separate them from the rest of the series, and this bill character is bridged by individual variation. Unless, therefore, we recognize three or four forms in this series, with a resulting confusion which would make it impossible definitely to name half the specimens in it, we must, nomenclaturally, ignore the small variations it presents and apply one name to all the birds from north of the Amazon. That they are not true *spirurus* we have seen. At one time I referred the southeastern Colombian specimens to *spirurus castelnaudi* (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 417), but the receipt of material from La Merced and the Vitoc region, which I accept as representing *castelnaudi*, indicates that I was mistaken in this opinion. These Peruvian birds have the throat somewhat less richly colored than most of the specimens from north of the Amazon, the underparts more olivaceous and the bill nearly as large as in true *spirurus*. If, therefore, these Peruvian specimens are true *castelnaudi*, it seems evident that this name cannot be applied to north of the Amazon birds; when, however, we compare the latter with a series of forty-three specimens from Mexico to western Ecuador we are quite unable to find any constant character by which the two series may be separated, and we consequently apply the name *Glyphorhynchus spirurus pectoralis* to the entire lot.

(2518) ***Dendrocincla macrorhyncha* Salvad. & Festa**

Dendrocincla macrorhyncha SALVAD. & FESTA, Boll. Mus. Tor. XV, No. 362, 1899, p. 27 (Pun, Ec.).

RANGE.—Eastern Ecuador (humid Temperate Zone ?).

The measurements given by the describers are larger than those of any specimen in our series. Dr. Hellmayr, who has examined the type, classes this form as a race of *tyrannina*, but we have essentially typi-

cal specimens of that species from eastern Ecuador, those from near Papallacta and above Baeza being in the Pun region and zone. I append measurements:

	Wing mm.	Tail mm.	Bill mm.
<i>D. macrorhyncha</i> , ¹ Pun, Ec.	144	120	35
<i>D. macrorhyncha</i> , ² Pun, Ec.	138	120	38
<i>D. t. tyrannina</i> , below Papallacta, Ec. . . . ♂	125	115	32
<i>D. t. tyrannina</i> , below Baeza, Ec. ♂	118	114	31
<i>D. t. tyrannina</i> , Sumaco, Ec. ♂	121	110	31
<i>D. t. tyrannina</i> , above Baeza, Ec. ♀	125	118	31

(2519) *Dendrocincla tyrannina tyrannina* (Lafr.)

Dendrocops tyranninus LAFR., Rev. Zool., 1851, p. 328 (Bogotá).

Dendrocincla tyrannina, S. & F., 1899b, p. 26 (Nanegal); GOODF., 1902, p. 62 (Nanegal); L. & R., 1922, p. 70 (Maspa; Baeza).

Dendrocincla brunnea S. & F., Bull. Mus. Tor., No. 330, 1898, p. 2 (Nanegal).

Dendrocincla tyrannina brunnea, OBERH., Proc. Acad. Nat. Sci. Phila., 1904, p. 450 (crit.).

"Ecuador," 1; Mindo, 1 ♂; El Chiral, 1 ♂; above Baeza, 1 ♀; below Baeza, 1 ♂; below Papallacta, 1 ♂; upper Sumaco, 1 ♂.

RANGE.—Chiefly Temperate Zone, Colombia and Ecuador.

Ecuadorean specimens agree with a Colombian series. Old 'Bogotá' as well as old 'Quito' skins are more rufous than recently collected ones. In a mounted bird collected at Choachi, near Bogotá, received from the Instituto de La Salle of that city, the anterior part of the body agrees with fresh skins, the posterior part with old ones. While I am unable to explain this condition, the specimen indicates that the rufescent coloring of old skins is due to postmortem change.

The 'Ecuador' specimen listed above is labeled by Dr. Oberholser "*D. tyrannina brunnea*," but it seems clear that the characters attributed to this form are due to the age of the specimen. Salvadori and Festa (1899b) synonymize *brunnea* with *tyrannina*.

(2523a) *Dendrocincla lafresnayeii ridgwayi* Oberh.

Dendrocincla ridgwayi OBERH., Proc. Acad. Nat. Sci. Phila., 1904, p. 458 (Talamanca, Costa Rica).

Dendrocincla olivacea, HART., 1898, p. 491 (Paramba); S. & F., 1899b, p. 27 (Vinces); GOODF., 1902, p. 62 (Santo Domingo).

Dendrocincla olivacea, MEN., 1911, p. 44 (Santo Domingo).

¹ Salvadori and Festa,

² Hellmayr.

Dendrocops atrirostris, SCL., 1860a, p. 66 (Pallatanga); 1860c, p. 88 (Nanegal); 1860d, p. 278 (Babahoyo); 1860e, p. 293 (Esmeraldas).

Dendrocinclla atrirostris, TACZ., 1877, p. 332 (Palma); B. & T., 1883, p. 563 (Chimbo).

Dendrocinclla lafresnayeii christiani BANGS & PENARD, Bull. M. C. Z., LXIII, 1919, p. 25 (Pavas, w. Col.).

Esmeraldas, 1 ♀; Chone, 2 ♂, 1 ?; Rio de Oro, 4 ♂, 1 ♀; Chongon Hills, 1 ♂; Naranjo, 5 ♀; Bucay, 1 ♂; Rios Coco and Chimbo, 1 ♀; Santa Rosa, 1 ♂, 1 ♀; Rio Jubones, 1 ♂; Punta Santa Ana, 1 ♀; above Zaruma, 1 ♂, 1 ♀; Alamor, 1 ♂.

RANGE.—The Tropical Zone of northwestern Peru, western Ecuador, Colombia, west of the East Andes (except Santa Marta), Panama, and Costa Rica to Honduras.

I have previously called attention to the variations exhibited by this species,¹ which examination now of more than double the number of specimens (fifty-five in all) still further emphasizes. So great, indeed, is the variation shown by our specimens from Ecuador alone that one is almost tempted to believe that the species is dichromatic, there being two phases of color—one rufescent, the other olivaceous—both being found at the same locality. The entire range of variation shown by birds from throughout the range ascribed to this form is covered by these Ecuadorean birds; thus, three specimens from Costa Rica can be repeatedly matched by Ecuadorean birds, while those from western Colombia (topotypical of *christiani* Bangs and Penard²) are also duplicated in Ecuador. Again, one from the Bogotá region and another from Honda can be matched in the Ecuadorean series. It is true there are certain tendencies toward the average differences exhibited by birds from northwestern Ecuador which, as a whole, are more rufescent than birds from southwestern Ecuador; while birds from western Colombia average the darkest of the entire series. These variations, however, are so completely overlapped by individual variation that, in my opinion, it is not advisable to name them, since any name applied to them could not be employed with exactness in the determination of our series. The question then arises, what name shall be applied to these birds? The fact that *Dendrocinclla lafresnayeii lafresnayeii* Ridgw. was described from a bird without locality, makes the specimen for all time absolutely unique, since it is impossible to secure a topotype of it. In response to my request, Mr. Bangs has, therefore, loaned me the type for examination.

Following the determination by Allen, Ridgway, Hellmayr, and Oberholser, of Santa Marta (Col.) specimens as *lafresnayeii*, I have

¹ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 418.

² Dr. Hellmayr recognizes this form.

suggested (*loc. cit.*) that Valparaiso, Santa Marta, be accepted as the type-locality, a suggestion which has been accepted by Todd and Carriker ('Birds of the Santa Marta Region,' p. 275) and which, fortunately, is confirmed by comparison of the type with Santa Marta birds. I am now convinced that the difference in the color of the bill between Santa Marta and other birds, to which I have previously called attention, is a character of racial value. Compared with skins of equal age, Santa Marta birds have the mandible brownish instead of jet-black, while the maxilla is—in adult specimens—marked with brownish black only at the basal portion of the sides of the rami. Every one of the specimens which I here call *ridgwayi* has the maxilla jet-black, while the mandible is whitish only along the gonys. This difference is, therefore, wholly diagnostic and, at least, so far as our series are concerned, enables one to distinguish at a glance the Santa Marta birds from the specimens of other parts of Colombia, Ecuador, Panama, and Costa Rica. That this character is of racial significance is indicated by the fact that in the color of the bill Santa Marta birds agree exactly with the form known as *Dendrocincla lafresnayeri phæochroa*. Of this form I have two topotypical specimens from the lower Orinoco, two from the upper Orinoco, and four from the vicinity of Villavicencio, at the base of the Andes east of Bogotá. Beyond a slight and inconstant difference in the color of the throat, which averages grayer in the Santa Marta birds, which also possibly have a more evident tint of the color of the back on the wing-quills, I am unable to find any difference between Santa Marta specimens and those representing *phæochroa*. So far, then, as the type of *lafresnayeri* is concerned, it might have come from Villavicencio quite as readily as from the Santa Marta region; and, indeed, since Villavicencio is in the heart of the eastern Bogotá region, it is by no means improbable that it did come from that locality. The case, it seems to me, eloquently illustrates the futility of naming variations which are so slight that when a specimen lacks a locality (as does the type of *lafresnayeri*) it is quite impossible to say to what form it belongs. It should be added that I have given due consideration to the fact that the type of *lafresnayeri* was a mounted bird, and as a result of exposure to light and also because of its age, it does not accurately represent the form to which it belongs. It can, however, be almost exactly matched both in the color of the plumage and in the color and pattern of the bill by Santa Marta specimens. While the bill is doubtless paler than it was in life, the pattern of coloration has not changed, and this pattern, as I have before said, agrees with that of Santa Marta specimens. In view of the close resemblance existing between Santa Marta birds and those from

eastern Colombia and the Orinoco region, it will always be a question which one the type of *lafresnaye*i represents, and I would solve this problem by referring the whole lot to this form.

I append a list of specimens, other than those above mentioned, which have been examined in this connection.

Colombia: Botero, Bogotá Region, 1; Honda, 1; Puerto Valdivia, 1; Rio Lima, 1; Nóvita, 2; Baudo, 1; Barbacoas, 1; Santa Marta, 7; eastern Panama: Tacarcuna, 6; Capeti, 1; Tapalisa, 2. Panama: Canal Zone, 1. Costa Rica: Bonilla, 2; Atalanta, 1. No locality: type of *Dendrocincla lafresnaye*i (Coll. Mus. Comp. Zoöl).

(2526) *Dendrocincla lafresnaye*i *phæochroa* Berl. & Hart.

Dendrocinda (sic) *phæochroa* BERL. & HART., Nov. Zoöl., IX, 1902, p. 67 (Munduapo, Ven.).

Dendrocincla atrirostris, SCL., P. Z. S., 1858, p. 63 (Rio Napo).

Below San José, 2 ♀; Rio Suno, 1 ♀.

RANGE.—Tropical Zone; lower Orinoco and Rio Branco to upper Amazon.

(2530) *Sittasomus sylvioides amazonus* Lafr.

Sittasomus amazonus LAFR., Rev. Zoöl., 1850, p. 590 ("haut Amazone"); B. & T., 1885, p. 98 (Mapoto).

Zamora, 3 ♀; Rio Suno, 1 ♂.

RANGE.—Tropical Zone: the species, Amazonia to Mexico; the race, Peru to eastern Ecuador and the lower Amazon (right bank only?).

The Zamora birds agree closely with specimens from the Tapajoz, Rio Roosevelt, Matto Grosso, as far south as Utiarity and southeastern Brazil. A specimen from Faró, above Obidos on the left bank of the Amazon, has the head and back much darker, the lower wing-coverts more ochraceous, and apparently represents another race which it seems undesirable to describe from but one specimen. This form differs from *S. sylvioides sylvioides* only in the color of the wing-band and under wing-coverts, which are respectively ochraceous-buff and light ochraceous-buff in *sylvioides*, and light ochraceous-buff and light buff in *amazonus*. I have seen no specimens from between eastern Ecuador and Panama, but the species is recorded from Colombia and, in any event, the differences between the two forms are practically bridged by individual variation in the specimens before me.

The fact that a specimen from Utiarity is typical *amazonus*, showing no approach to *S. griseicapillus chapadensis*, in connection with the

pronounced characters separating these two forms, leads me to believe that they do not intergrade. Dr. Hellmayr synonymizes *S. chapadensis* Ridgw. with *S. g. griseicapillus* (Vieill.). The latter name, based on Azara is unquestionably applicable to the Paraguay bird. But three Paraguay (Ft. Wheeler) specimens in our collection are evidently separable from the Chapada, Matto Grosso, form. They are somewhat smaller, with noticeably smaller bills, and are less olivaceous below. With them I should place five specimens from Urucum, near Corumbá.

(2531) *Sittasomus æquatorialis* Ridgw.

Sittasomus æquatorialis RIDGW., Proc. U. S. N. M., XIV, 1891, p. 509 (Guayaquil, Ec.).

Sittasomus erithacus, SCL., 1860d, p. 278 (Babahoyo); 1860e, p. 293 (Esmeraldas).

Sittasomus olivaceus, Tacz., 1877, p. 323 (Lechugal; Palmar).

Sittasomus amazonus, B. & T., 1883, p. 562 (Chimbo).

Chone, 1 ♂, 1 ♀; Guayaquil, 1 ♂; Babahoyo, 1 ?; Chongoncito, 2 ♂, 1 ♀; Chongon Hills, 1 ♀; Santa Rosa, 3 ♂, 1 ♀; Casanga, 1 ♂; Cebollal, 2 ♂; Alamor, 5 ♂, 2 ♀; Guainche, 1 ♂.

RANGE.—Tropical and Subtropical Zones, western Ecuador and northwestern Peru.

No form of *Sittasomus* has been recorded from the Pacific coast region of Colombia, and this species appears to have no connection, therefore, with *S. sylviellus levis* of Panama. From *S. sylviellus amazonus* it is apparently separated by the Andes of northern Peru, but we have specimens of *æquatorialis* from Palambla, west of Huancabamba, indicating a possible Amazonian origin, through the Marañon. It is significant, therefore, to note that while in general coloration this species resembles *S. griseicapillus chapadensis*, in the color of the wing-band and under wing-coverts it is nearer *S. sylviellus amazonus*, geographically its nearest ally.

(2534) *Deconychura longicauda* (Pelz.)

Dendrocinda longicauda PELZ., Orn. Bras., 1871, pp. 42, 60, ("Manaos"—Hellmayr).

Sabanilla, 1 ♂; Macas, 1.

RANGE.—Tropical Zone, Guiana to eastern Ecuador and Peru.

These specimens are more heavily spotted below than an example from the Rio Roosevelt. One is in molt, the other (from Macas) measures: wing 105 mm.; tail 107 mm.

(2536) *Deconychura secunda* Hellm.

Deconychura secunda HELLM., Bull. B. O. C., XIV, 1904, p. 51 (Coca River, Upper Napo).

RANGE.—Tropical Zone; eastern Ecuador.

I have not seen this species.

(2539) *Xiphorhynchus guttata guttatoides* (Lafr.)

Nasica guttatoides LAFR., Rev. et Mag. de Zoöl., 1850, p. 387 (Loreto, Peru).

'Napo,' 1; Rio Suno, 3♂, 4♀; below San José, 1♂.

RANGE.—Tropical Zone: the species, Amazonia; the race, upper Amazonia.

I have seen no typical material, but Hellmayr refers eastern Ecuadorean specimens to this race (Nov. Zoöl., XIV, 1907, p. 59).

(2542) *Xiphorhynchus erythropygius æquatorialis* (Berl. & Tacz.)

Dendrorhis erythropygia æquatorialis BERL. & TACZ., P. Z. S., 1883, p. 563 (Chimbo, alt. 1,000 ft., w. Ec.); HART., 1898, p. 490 (Chimbo); MEN., 1911, p. 45 (Gualea; Santo Domingo).

? *Dendrorhis triangularis*, SCL., 1859a, p. 140 (Pallatanga).

Dendrorhis æquatorialis, S. & F., 1899b, p. 25 (Rio Peripa).

Dendrorhis punctigula, GOODF., 1902, p. 63 (Nanegal; Intag; Gualea).

Xiphorhynchus æquatorialis, L. & R., 1922, p. 71 (Mindo; Gualea; Nanegal). Bucay (Rhoads).

Mindo, 2♀; Rio de Oro, 1♂, 1♀; Cerro Manglar Alto, 1♂, 1♀; Naranjo, 2♂; Chimbo, 1♂, 4♀; Bucay, 1♂, 2♀; La Chonta, 2♂, 1♀; El Chiral, 1♂; Zaruma, 2♂, 1♀; Salvias, 1♂; Punta Santa, 1♂.

RANGE.—Chiefly Tropical Zone: the species, southwestern Ecuador to southern Mexico; the race, western Ecuador (ranging upward to the Subtropical Zone in southwestern Ecuador) north into western Colombia.

Miller and Griscom call attention to a specimen from Ocotal, Nicaragua, which, in its streaked back, agrees with *erythropygius*, while its spotted throat resembles that of *punctigula*. This intermediate specimen indicates the intergradation of these races and if this be true we have but one species ranging from southern Mexico to southwestern Ecuador. I have yet to see any evidence of the intergradation of *æquatorialis* with *triangularis*.

(2543) *Xiphorhynchus triangularis triangularis* (Lafr.)

Dendrocolaptes triangularis LAFR., Rev. Zoöl., 1842, p. 134 (Bogotá).

Dendrorhis triangularis, B. & T., 1885, p. 98 (Machay).

Dendrornis erythropygia, GOODF., 1902, p. 63 (Baeza).

Xiphorhynchus triangularis, L. & R., 1922, p. 71 (Maspa).

Puente del Rio Quijos, 1 ♀; below Rio Sardinias, 1 ♂; Baeza, 3 ♂; below Oyacachi, 2 ♂, 1 ♀; near Macas, 1 ?; Sabanilla, 4 ♀, 2 ♂; Zamora, 3 ♂, 1 ♀; San José de Sumaco, 2 ♂; lower Sumaco, 1 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to Colombia; the race, northern Peru, Ecuador, all three Andean ranges in Colombia and western Venezuela.

Ecuadorean specimens are typical of this race which, although it differs from *æquatorialis* and agrees with *erythropygius* in possessing a scaled instead of spotted throat, apparently does not, like *erythropygius*, intergrade with *æquatorialis*. While presumably a zonal representative of *erythropygius*, it is noteworthy that *triangularis* is not found in the West Andes of Ecuador, but is found in the West Andes of Colombia. Its relationship there with *æquatorialis* is discussed in my paper on Colombian birds (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 420).

(2544) ***Xiphorhynchus lachrymosus lachrymosus*** (Lawr.)

Dendrornis lachrymosus LAWR., Ann. Lyc. Nat. Hist. N. Y., VII, 1862, p. 467 (Panama).

Dendrornis lacrymosa, HART., 1902, p. 616 (Carondelet; Bulón).

Esmeraldas, 2 ♂, 3 ♀, 1 ?.

RANGE.—Tropical Zone: the species, Ecuador to Costa Rica; the race, north-western Ecuador, Colombia, west of the western Andes, to central Panama.

Ecuadorean specimens agree with a small Panama series (including the type) of this form.

(2553) ***Xiphorhynchus elegans insignis*** (Hellm.)

Dendrornis insignis HELLM., Bull. B. O. C., XV, 1905, p. 56 (Samiria, n. e. Peru).

Dendrornis ocellata, S. & F., 1899b, p. 25 (Valle del Rio Santiago); GOODF., 1902, p. 63 (Archidona).

Rio Suno, 1 ♂.

RANGE.—Recorded by Hellmayr (*loc. cit.*) from northeast Peru, eastern Ecuador, and Bogotá.

I have seen no Peruvian specimens, but refer one Ecuadorean bird and three from eastern Colombia (Buena Vista and Florencia) to this race. They vary much in intensity of color and, when compared with a topotype of *elegans* received from the Vienna Museum, are so near that race that their relationship seems best expressed by a trinomial.

(2555a) *Xiphorhynchus chunchotambo napensis* Chapm.

Xiphorhynchus chunchotambo napensis CHAPM., Amer. Mus. Novit., No. 123, 1924, p. 8 (Rio-Suno, Ec.).

Xiphorhynchus chunchotambo, HELLM., Arch. für Naturg., 1919, p. 79 (Gualaquiza; Sarayacu; Napo; crit.).

Rio Suno, 5 ♂, 5 ♀; below San José, 2 ♂, 3 ♀; Zamora, 1 ♂.

Subspecific Characters.—Similar to *Xiphorhynchus chunchotambo chunchotambo* (Tsch.) of eastern Peru but crown-spots smaller, back streaks narrower, barely more than shaft-streaks; general tone of the underparts richer, the lighter markings deeper buff; the buff throat-space smaller, more encroached upon by the blackish margined feathers; abdominal region less distinctly streaked.

RANGE.—Tropical Zone: the species, eastern Bolivia to eastern Ecuador; the race, eastern Ecuador.

Dr. Hellmayr has called attention to the differences between Ecuadorean and Peruvian specimens of this species and our series amply confirms his statements.

(2558) *Xiphorhynchus obsoletus palliatus* (Des Murs)

Dendrorhynchus palliatus DES MURS, Voy. Casteln., Ois., 1855, p. 45 pl. XV, fig. 1, (Sarayacu, Peru).

Dendrorhynchus multiguttata, SCL., Cat. Bds. B. M., XV, 1890, (Rio Napo, specimen examined by Hellmayr).

Dendrorhynchus obsoleta multiguttata, MEN. & HELLM., Mem. Soc. Hist. Nat. XIX, 1906, p. 105 (spec. f, Rio Napo).

RANGE.—Tropical Zone; northeastern Peru and eastern Ecuador.

I have seen no specimens.

(2570) *Xiphocolaptes promeropirhynchus promeropirhynchus* (Less.)

Dendrocolaptes promeropirhynchus LESS., Rev. Zool., 1840, p. 270 (Colombia).

Xiphocolaptes promeropirhynchus, SCL., 1859a, p. 140 (Pallatanga); GOODF., 1902, p. 63 (Baeza).

Xiphocolaptes compressirostris, B. & T., 1885, p. 98 (San Rafael); S. & F., 1899b, p. 26 (Concepcion).

Xiphocolaptes promeropirhynchus crassirostris, L. & R., 1922, p. 70 (Alonguiche; Piganta).

Xiphocolaptes ignotus RIDGW., Proc. U. S. N. M., XII, 1889, p. 13 (Ecuador; type in Am. Mus.).

Xiphocolaptes saturatus RIDGW., Proc. U. S. N. M., XII, 1889, p. 14 ("Guayaquil," Ec.).

Pallatanga, 1 ♂; El Chiral, 2 ♂, 1 ♀; Chical, 1 ♀; above Baeza, 3 ♀; "Ecuador," 1 ♂ (type of *X. ignotus* Ridgw., in Am. Mus.); "Guayaquil," 1 (type of *X. saturatus* Ridgw., in Nat. Mus.); upper Sumaco, 1 ♂; below San José, 1 ♂.

RANGE.—Subtropical and humid Temperate Zones: the species, Bolivia to Mexico; the race, western Venezuela, Colombia, and Ecuador.

In addition to the Ecuadorean specimens above mentioned, I have the following:

Colombia: "Bogotá," 3; Aguadita, 1♂, 1♀; Cundinamarca, 1♂; Subia, Cundinamarca, 2♀; La Candela, 1♂, 2♀; La Palma, 1♂; Rio Toché, 1♂; Salento, 1♂, 1 ?; Laguneta, 1♂. Venezuela: near Mérida, 2♂, 1♀.

The thirty specimens before me present a surprisingly wide range in color and pattern, but I am unable to associate these variations with either age, sex, or locality. Specimens from the same place have the abdomen barred with black or wholly without such bars. Young birds largely in juvenal plumage and obviously fully adult birds are barred below. Both males and females are barred or unbarred. Possibly these bars are less evident toward the north, since they are wholly absent on two Mérida and one Colombian specimens, practically wanting on three or four more from Colombia, while all Ecuadorean specimens possess them. In general tone of color the underparts vary from warm buff to ochraceous-orange, but this appears to be wholly individual. The upperparts are less variable than the underparts. The crown is darker in some specimens than others and the width of the crown-stripes varies, but the back is quite uniform in color and in its shaft-streaks. A specimen from Laguneta at the northern end of the Central Andes of Colombia is paler above and more broadly streaked than any other bird in the series. It agrees very closely with the type of *X. virgatus* Ridgw. from an unknown locality, but with a make which suggests an Antioquian skin. Laguneta is in the Antioquia region. The specimen from that place is the only one we have from the Temperate Zone of Colombia. If its characters are racial, the name *X. promeropirhynchus virgatus* might be applied to birds of that region, but the degree of variation shown by this species makes me doubt the existence of such a race, and for the present I should synonymize *virgatus* with *promeropirhynchus*.

While I can find no racial variation in color or pattern between Ecuadorean and Colombian birds, there is no doubt that in the former the bill averages stouter and more decurved than in the latter, and I was at first inclined to recognize an Ecuadorean form (*X. p. ignotus* Ridgw.¹) on this character, but I found that while all the stoutest, most decurved bills belong to Ecuadorean birds, and all the most slender, straightest bills to Colombian ones, that so many specimens from both

¹ This race is recognized by Hellmayr.

countries have bills essentially alike that a name based on this character alone is far from diagnostic. Furthermore, the type of *ignotus* Ridgw., labeled "Equateur" by Verreaux, is not an extreme example of the Ecuadorean bird and can be matched by topotypical examples of true *promeropirhynchus*. I conclude, therefore, that an attempt to recognize an Ecuadorean form of this species would be based on geographic rather than biologic grounds, and for that reason place both *ignotus* Ridgw. and *saturatus* Ridgw. under *promeropirhynchus*. The type of *saturatus*, which Dr. Richmond has kindly sent me, can be exactly matched by several birds in our Ecuadorean series. It belongs in a small collection secured by Dr. William H. Jones of the U. S. Navy at Guayaquil, and presented by him to the National Museum as having come from that locality. It is evident, however, that the collection came from the interior, doubtless from Quito, whence birds are sent to Guayaquil for sale, since it also contained the type of *Lathria fuscocinerea* 'guayaquilensis' Ridgw., a species of the humid Temperate Zone of the East Andes. (See also remarks on this collection in Bull. Amer. Mus. Nat. Hist., XXXIV, 1915, p. 377.)

(2573) ***Xiphocolaptes promeropirhynchus crassirostris* Tacz. & Berl.**

Xiphocolaptes crassirostris TACZ. & BERL., P. Z. S., 1885, p. 113 (Palmar, Ec.).

Alamor, 2♂.

RANGE.—Subtropical Zone; northwestern Peru and southwestern Ecuador.

In its unmarked, nearly white throat and general color this species resembles *X. p. procerus*, but the streaks below are narrower, and the crown is much darker, nearly blackish, and hence quite different from the back.

(2589a) ***Lepidocolaptes warszewiczi æquatorialis* (Men.)**

Picolaptes lacrymiger æquatorialis MEN., Rev. Franc. d'Orn., No. 2, 1912, p. 389 (w. Ec.); L. & R., 1922, p. 70 (road to Guala; below Nono).

Picolaptes lacrymiger, SCL., 1859a, p. 140 (Pallatanga); 1860c, p. 88 (Nanegal); 1885, p. 98 (San Rafael).

Picolaptes lacrymiger warszewiezi, B. & T., 1884, p. 301 (Cayandeled).

Picolaptes warceveizi, GOODF., 1902, p. 63 (Guala; Intag; Santo Domingo; Baeza). Pagma Forest (Rhoads).

Guala, 3; El Chiral, 7♂; above Zaruma, 1♂; Salvias, 1♂; San Bartolo, 2♂; Guachanamá, 1♀; Celica, 1♂; Alamor, 2♂, 1♀; Baeza, 4♂, 2♀; upper Sumaco, 2♂, 2♀.

RANGE.—Subtropical Zone: the species, Bolivia to Ecuador; the race, eastern and western Ecuador. Represented in Colombia and Venezuela by the closely related *L. lacrymiger*.

The light streaks below are not enclosed terminally by black as in true *lacrymiger*, and this form, therefore, more nearly agrees with *warscewiczii* (from Vitoc Valley) than with the Colombian race. I have seen, indeed, no intermediates between the Ecuadorean and Colombian birds. From *warscewiczii* it differs in being slightly more rufescent and more broadly streaked below.

Specimens from western Ecuador, as far south as El Chiral, agree with *warscewiczii* in having the foreback unstreaked, but those from eastern and southwestern Ecuador usually have the back streaked much as in *bolivianus*.

(2595) ***Lepidocolaptes souleyti souleyti* (Des Murs)**

Dendrocolaptes souleyti DES MURS, Icon. Orn., 1849, pl. 70 (Perou).

Picolaptes souleyti, Tacz., 1877, p. 323 (Tumbez).

Alamor, 1 ♂; Pullango, 1 ♂; Guainche, 1 ♀; Rio Pindo, 2 ♂; Casanga, 1 ♂; also a large series from Peru.

RANGE.—Tropical Zone: the species, northwestern Peru to southwestern Colombia; the race, northwestern Peru and southwestern Ecuador.

(2595a) ***Lepidocolaptes souleyti esmeraldæ* Chapm.**

Lepidocolaptes souleyti esmeraldæ CHAPM., Amer. Mus. Novit., No. 86, 1923, p. 18 (Esmeraldas, n. w. Ec.).

Picolaptes souleytii, SCL., 1860d, p. 278 (Babahoyo); 1860e, p. 293 (Esmeraldas); B. & T., 1883, p. 563 (Chimbo); 1885, p. 98 (Yaguachi); S. & F., 1899b, p. 26 (Savana de Guayaquil; Vines; Balzar); HART., 1902, p. 616 (San Javier; Bulón; Pambilar).

Esmeraldas, 3 ♂; Rio de Oro, 1 ♂, 1 ♀; Chone, 4 ♂, 1 ♀; coast of Manaví, 1 ♂; Daule, 1 ♀; Chongoncito, 2 ♂, 3 ♀; Chongon Hills, 1 ♂; Guayaquil, 2 ♂, 1 ♀; Duran, 1 ♂; Santa Rosa, 5 ♂, 2 ♀; Portovelo, 2 ♂.

Subspecific Characters.—Resembling *Lepidocolaptes souleyti souleyti* (Des Murs) of the Tropical Zone of northwestern Peru and southwestern Ecuador, but throat darker; stripes of underparts deeper buff, their black borders less intense, the margins of the feathers much browner, less gray (tawny-olive rather than Saccardo's umber); margins to crown feathers averaging browner; bill shorter. Similar to *Lepidocolaptes albolineatus albolineatus* (Lafr.) of the Tropical Zone of Colombia, eastern Panama, and northwestern Venezuela, but maxilla paler, crown-stripes broader; dark tips to outer primaries shorter, throat paler, the unmarked area larger, stripes below broader and more buffy.

RANGE.—Tropical Zone from southwestern Colombia to southwestern Ecuador.

Lacking specimens of *souleyti*, I formerly referred Ecuadorean and southwestern Colombian examples to *Lepidocolaptes albolineatus albolineatus*, but a more thorough review of the variations of this group

shows that the affinities of these birds are with the northwestern Peruvian form, with which they geographically intergrade. On the other hand, in view of the preference of this species for open country, it is quite possible that its range is not continuous in western Colombia, and as the characters separating *esmeraldæ* from *albolineatus* are constant, I have no evidence of their intergradation. I may add that with a better understanding of the variations which occur in this group I am by no means certain of the status of the birds of the Canal Zone, to which the name *lineaticeps* Lafresnaye is applied. East Panama specimens are not separable from Colombian ones, but two Galbraith (Canal Zone) skins appear to be somewhat paler; a series is needed to determine their status. Four specimens from Villavicencio and Buena Vista, east of Bogotá, have the throat and streaks below paler, the margins of the feathers grayer, the crown darker, its streaks whiter than in specimens from the interior of Colombia, from which, indeed, they differ much as *souleyeti* does from *esmeraldæ*. But in default of an adequate series from the coast of Venezuela, *L. a. "littoralis"* (Hart. and Goods.), and in view of the uncertainty in regard to the type-locality of *albolineatus* I do not describe this form.

Specimens from near Guayaquil approach true *souleyeti*, and in southwestern Ecuador it is difficult to draw a line separating the ranges of the two forms.

(2596) ***Lepidocolaptes fuscicapillus fuscicapillus* (Pelz.)**

Picolaptes fuscicapillus PELZ., Orn. Bras., I, 1868, pp. 44, 63 (Engenho do Gama); SCL., Cat. Bds. B. M. XV, 1890, p. 154 (Sarayacu).

Rio Suno, 2 ♀.

RANGE.—Tropical Zone; the race, Bolivia to eastern Ecuador.

The specimen from Sarayacu, in the British Museum, agrees with one from southeastern Peru, but is slightly browner below, with the central buffy streaks narrower. With adequate material for study, the Ecuadorean bird will doubtless prove to be separable. A Bolivian bird is larger and decidedly more rufous.

(2601) ***Nasica longirostris* (Vieill.)**

Dendrocopus longirostris VIEILL., Nouv. Dict. d'Hist. Nat., XXVI, 1818, p. 117 ("Bresil").

Nasica longirostris, SCL., Cat. Bds. B. M., XV, 1890, p. 157 (Rio Napo; Sarayacu).

RANGE.—Tropical Zone; northern Amazonia.

I have seen no Ecuadorean specimens.

(2607) **Campylorhamphus trochilirostris thoracicus** (Scl.)

Xiphorhynchus thoracicus SCL., P. Z. S., 1860, p. 277 (Babahoyo, w. Ec.); 1860e, p. 293 (Esmeraldas); TACZ., 1877, p. 323 (Lechugal); B. & T., 1885, p. 99 (Yaguachi); S. & F., 1899b, p. 26 (Rio Peripa).

Xiphorhynchus trochilirostris, GOODF., 1902, p. 63 (Santo Domingo).

Xiphorhynchus trochilirostris thoracicus, HART., 1902, p. 616 (San Javier; Pambilar).

Bucay (Rhoads).

Esmeraldas, 2♂, 1♀; El Destino, Manaví, 1♂; Chone, 1♂?; Naranjo, 4♂, 1♀; Bucay, 1♀; Chimbo, 1♂; Santa Rosa, 1♀, 4♀; Alamor, 2♂.

RANGE.—Tropical Zone, northwestern and eastern Peru, western Ecuador, and southwestern Colombia.

I have already called attention to the individual variation in this species¹ which a larger series further emphasizes. There is apparently also some geographic variation, specimens from Santa Rosa and southward being, as a rule, much more broadly streaked above. The difference is, however, wholly bridged by individual variation. This species is apparently a representative of the *trochilirostris* group most nearly related to *t. venezuelensis*.

(2607a) **Campylorhamphus trochilirostris napensis** Chapm.

Campylorhamphus trochilirostris napensis CHAPM., Amer. Mus. Novit. No. 187, 1925, p. 4 (Rio Suno, above Avila, e. Ec.).

Rio Suno, 1♂, 2♀; below San José, 1♀.

Subspecific Characters.—Similar to *Campylorhamphus trochilirostris thoracicus* Scl. of western Ecuador; but wings and tail darker; the tail, and particularly bill, shorter.

RANGE.—Tropical Zone; eastern Ecuador.

(2607b) **Campylorhamphus pusillus** (Scl.)

Xiphorhynchus pusillus SCL., P. Z. S., 1860, p. 278 ("In Nov. Granada int."); HART., 1902, p. 616 (Ventana).

Campylorhamphus pusillus, L. & R., 1922, p. 71 (Gualaea; Santo Domingo).

Baeza, 1♂; lower Sumaco, 4♂, 1♀.

RANGE.—Chiefly Subtropical Zone; northern Ecuador and Colombia.

These birds agree with topotypical specimens. I have already suggested² the possibility of there being a Pacific coast form to which doubtless western Ecuadorean birds would belong.

¹ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 424.

² Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 425.

(2611) *Campylorhamphus pucherani* (Des Murs)

Xiphorhynchus pucherani DES MURS, Icon. Orn., 1849, pl. 69 (Bogotá); GOODF., 1902, p. 63 (Guanacillo).

Upper Sumaco, 1 ♂.

RANGE.—Subtropical to Temperate Zone; eastern Ecuador and Colombia; new to Ecuador.

Our only other specimen of this rare species was taken at Cocal in the West Andes of Colombia. The Sumaco bird is larger, the crown, nape, and chest are more rufescent, the foreback and abdomen more streaked. It would not be surprising if they represented two races, but comparison with Bogotá specimens is needed to determine which of the two is true *pucherani*.

	Wing mm.	Tail mm.	Culmen mm.
Sumaco, Ec. ♂	125	105	59
Cocal, Col. ♂	117	102	55

(2616) *Dendrocolaptes picumnus validus* Tsch.

Dendrocolaptes validus TSCH., Arch. für. Naturg., X, 1844, p. 296 ('Wald-region von Peru zwischen 10° und 12° Sud Breite'); B. & T., 1884, p. 301 (Cayandede); GOODF., 1902, p. 62 (Baeza).

RANGE.—Tropical and Subtropical Zones: the species, Guianas to Peru and Guatemala; the race, Peru to eastern Ecuador.

Recorded from both eastern and western Ecuador. We have no Ecuadorean specimens. Southeastern Colombian specimens are considered by Hellmayr as referable to *multistrigatus*.

(2618) *Dendrocolaptes certhia sancti-thomæ* (Lafr.)

Dendrocops sancti-thomæ LAFR., Rev. et Mag. de Zoöl., 1852, p. 466 (Santo Tomas, Honduras).

Dendrocolaptes sanctithomæ, HART., 1902, p. 616 (San Javier; Carondelet).

RANGE.—Tropical Zone: the species, French Guiana to Mexico and Bolivia; the race, southern Mexico to northwestern Ecuador.

I have seen no Ecuadorean specimens.

(2619) *Dendrocolaptes certhia radiolatus* Scl. & Salv.

Dendrocolaptes radiolatus SCL. & SALV., P. Z. S., 1867, p. 755 (Yurimaguas, Peru); S. & F., 1899b, p. 27 (Valle del Rio Santiago); GOODF., 1902, p. 62 (Archidona).

Rio Suno, 2 ♂, 1 ♀.

RANGE.—Tropical Zone: the race, eastern Peru to eastern Colombia.

I have seen no Peruvian specimens.

FAMILY TYRANNIDÆ. FLYCATCHERS

(2631) *Agriornis pollens* *Scl.*

Agriornis pollens SCL., P. Z. S., 1869, p. 153 (Panza, Ec.); L. & R., 1922, p. 71 (near Yaguarcocha).

Agriornis andicola, SCL., 1860*b*, p. 78 (Panza); 1860*c*, p. 92 (Calacali; common on the paramo).

Quito, 1 ♂; Cumbaya, 1 ♂; Huamani, 1 ♀; Antisana, 1 ♂; Bestion, 2 ♂, 1 ♀.

RANGE.—Paramo and arid Temperate Zones from northwestern Argentina to northern Ecuador.

Peruvian specimens average slightly smaller and grayer, but the differences are not sufficient to be of racial value.

This species has been recorded from the Tucuman region of Argentina (see Dabbene, Orn. Arg., p. 314), but if a specimen in our collection from Tafi del Valle truly represents the form of that region, it is separable from *pollens* because of its basally dark outer rectrices.

(2634) *Agriornis solitaria solitaria* *Scl.*

Agriornis solitaria SCL., P. Z. S., 1858, p. 553 (Titiacun, Ec.); 1860*b*, p. 78 (Quito); 1860*c*, p. 92 (Puellarro); Cat. Bds. B. M., XIV, 1888, p. 7, pl. iii; HART., 1898, p. 486 (Cayambe); S. & F., 1899*b*, p. 2 (Laguna di Kingora; Quito; Lloa); GOODF., 1901, p. 700 (Quito; west Andes, 8,500 to 11,000 ft.); MEN., 1911, p. 45 (Aloag); L. & R., 1922, p. 71 (Quito; Zambiza; Tumbaco).

Hacienda Garzon; Cumbaza (Rhoads).

Pichincha, 2 ♂; Antisana, 1 ♂; Cumbaya, 1 ♂; below Cerro Huamani, 2 ♀; Urbina, 1 ♂, 1 ♀; Chimborazo, 3 ♂, 1 ♀; Taraguacocha, 1 ♂, 1 ♀; near Nabon, 1 ♂, 1 ♀.

RANGE.—Paramo and arid Temperate Zones: the species, Bolivia to Colombia; the race, Ecuador to Colombia.

This race averages slightly darker above and more so below, and has the throat less streaked than in the more southern *solitaria insolens*, but these differences are bridged by individual variation, one of two specimens from near Nabon being practically like Peruvian examples of *insolens*, while the other is typical *solitaria*. Huancabamba (Peru) specimens, it may be added, are unquestionably *insolens*.

(2636) *Cnemarchus erythropygius* (*Scl.*)

Tænioptera erythropygius SCL., P. Z. S., 1851, p. 193, pl. xli (Ecuador).

Myiotheretes erythropygius, B. & T., 1885, p. 87 (San Rafael); S. & F., 1899*b*, p. 2 (Chaupi); GOODF., 1901, p. 700 (Pichincha, 14,000 ft.; Guamani Pass, East Andes,

16,000 ft.); MEN., 1911, p. 46 (Mozo Pichincha); RHOADS, 1912, p. 145 (Paramo of Pichincha); L. & R., 1922, p. 71 (Pichincha, 13,500 to 14,000 ft.; Guamani, 13,600 ft.).

South side of Pichincha, 13,500 ft. (Rhoads).

Mojanda Mts. (10,500 ft.), 1 ♀; Verdecocha (13,300 ft.) 1 ♀; Papallacta, 2 ♀; Huamani, 1 ♂, 1 ♀.

RANGE.—Upper Temperate and Paramo Zones, from Bolivia to northern Ecuador.

A very distinct species.

(2637) *Orodynastes striaticollis striaticollis* (Scl.)

Tænioptera striaticollis SCL., P. Z. S., 1851, p. 193, pl. xlii (Ecuador).

Myiotheretes striaticollis, SCL., 1860c, p. 92 (between Perucho and Puellaro); B. & T., 1885, p. 86 (Machay; San Rafael); S. & F., 1899b, p. 2 (Sigisig; Ibarra); GOODF., 1901, p. 700 (Pichincha, 10,000 ft.); HART., 1902, p. 607 (Ibarra); MEN., 1911, p. 46 (Tumbaco; Amboasi); L. & R., 1922, p. 71 (near Quito; Cumbaya; Chaupicruz).

Huigra; below Chambo (8,600 ft.); Hacienda Garzon; Cumbaya (Rhoads).

Mojanda Mts. (10,500 ft.), 1 ♀; Pichincha, 1 ♂; Cumbaya, 4 ♂, 1 ♀; Antisana, 1 ♀.

RANGE.—Upper Subtropical and Temperate Zones: the species, northwestern Argentina to Venezuela; the race, Bolivia to Venezuela.

Ecuadorean birds are topotypical of this very distinct, wide-ranging species. The form described from the Tucuman region (*O. s. pallidus*) is distinguished by its browner upperparts, paler underparts, and less heavily streaked throat. We have a topotypical specimen of this race, and it *can be exactly matched* by specimens from Inca Mine (Santo Domingo, southeastern Peru), taken at an altitude of 6,000 feet. The occurrence of this species in the humid subtropics of this somewhat isolated mountain range is sufficiently surprising, but that specimens taken there should agree with the form from a widely different and remote region is even more so. The case is further complicated by the occurrence of typical *striaticollis* on the tableland of Bolivia near Cochabamba, leaving parallelism as the only explanation of the similarity of the Tucuman and Santo Domingo specimens.

(2647) *Ochthodixeta fumigatus fumigatus* (Boiss.)

Tyrannula fumigata BOISS., Rev. Zoöl., 1840, p. 71 (Bogotá).

Tyrannus fumigatus, JARD., 1856, p. 91 (e. Cordillera).

Ochthæca fumigata, SCL., 1858c, p. 554 (Matos); 1860a, p. 67 (Chillanes).

Ochthodixeta fumigatus, B. & T., 1884, p. 294 (La Union); 1885, p. 87 (San Rafael;

La Union); S. & F., 1899b, p. 2 (Pun; Papallacta); GOODF., 1901, p. 700 (Pichincha, 11,500 to 13,000 ft.; Papallacta, 11,500 ft.); MEN., 1911, p. 46 (Frutillas); L. & R., 1922, p. 71 (Verdecocha).

Verdecocha, 1 ♂; Chical (10,000 ft.), 1 ♂; Hoquanishi (8,500 ft.), 1 ♀; below Papallacta, 1 ♂; above Baeza, 2 ♂, 1 ♀; upper Sumaco, 1 ♂, 1 ♀.

RANGE.—Humid Temperate Zone: the species, Ecuador to western Venezuela; the race, Ecuador and Colombia.

In the rufescent tinge of the under tail-coverts, Bogotá specimens show an approach to the Venezuelan *lugubris*. It is singular that the Santa Martán *O. pernix* should so nearly resemble the Bolivian *O. fusco-rufus*.

(2654) *Ochthoeca brunneifrons* Berl. & Stolz.

Ochthoeca ananthoides brunneifrons BERL. & STOLZ., P. Z. S., 1896, p. 355 (Maraynioc, c. Peru); HART., 1898, p. 486 (Mt. Cayambe); MEN., 1911, p. 47 (Chambo; Cachuqui; crater of Pichincha); L. & R., 1922, p. 71 (below Lloa and Nono; Chinguil).

Ochthoeca fumicolor, SCL., 1858c, p. 554 (Titicun); 1860b, p. 79 (Panza); B. & T., 1884, p. 295 (Cechce); 1885, p. 87 (San Rafael).

Ochthoeca brunneifrons, S. & F., 1899b, p. 2 (El Troje; Chaupi; Papallacta).

Ochthoeca ananthoides, GOODF., 1901, p. 701 (Pichincha; Mojanda and Papallacta, above 11,000 ft., in sheltered ravines).

Ochthoeca fumicolor brunneifrons, HELLM., Nov. Zoöl., XXI, 1914, p. 166 (crit.).

Hacienda Garzon; above Chambo, 12,800 ft. (Rhoads).

Pichincha, 1 ♂, 2 ♀; above Lloa, 1 ♂; Yanacocha, 1 ♀; below Cerro Huamani, 1 ♂; Oyacachi, 4 ♂, 2 ♀; upper Sumaco, 1 ♂; Urbina, 2 ♀; Chimborazo, 5 ♂; El Paso, 1 ♂; Bestion, 2 ♂, 3 ♀; Taraguacocha, 3 ♂.

RANGE.—Upper border of humid Temperate Zone; central Peru to the northern end of the Central and West Andes of Colombia.

Comparison of these Ecuadorean birds and a large series of *brunneifrons* from the Central and West Andes of Colombia with four topotypes of this race, reveals no racial differences. This constancy in color leads me to doubt intergradation of *brunneifrons* with *fumicolor* of the East Andes.

(2662) *Ochthoeca frontalis frontalis* (Lafr.)

Tyrannula frontalis LAFR., Rev. Zoöl., 1847, p. 70 (Pasto).

Ochthoeca citrinifrons SCL., P. Z. S., 1862, p. 113 (Ecuador); S. & F., 1899b, p. 2 (Chinguil); GOODF., 1901, p. 701 (w. Pichincha).

Ochthoeca frontalis, MEN., 1911, p. 47 (Lloa; Frutillas); L. & R., 1922, p. 72 (below Lloa; below Nono).

Southern base of Pichincha, 10,500 ft. (Rhoads).

Yanacocha, 1 ♂.

RANGE.—Upper humid Temperate Zone: the species, northern Ecuador, north in the Central Andes of Colombia; the race, northwestern Ecuador north to Colombia.

This is the northern representative of *O. jelskii*, from which it is distinguished chiefly by the absence of wing-bars. In northeastern Ecuador it is replaced by the nearly allied race, *orientalis*, which, in turn, is represented in the eastern Andes of Colombia by *O. albidiedema*, which resembles true *frontalis* in general color but has a yellow frontal band.

(2662a) *Ochthœca frontalis orientalis* Chapm.

Ochthœca frontalis orientalis CHAPM., Am. Mus. Novit., No. 118, 1924, p. 4 (Oyacachi, Ec.).

Ochthœca citrinifrons, S. & F., 1899b, p. 2 (Papallacta); GOODF., 1901, p. 701 (Papallacta).

Oyacachi, 4 ♂, 3 ♀; Papallacta, 1 ♂; upper Sumaco, 3 ♂, 5 ♀.

Subspecific Characters.—Similar to *Ochthœca frontalis frontalis* Lafr. of the West Andes in Ecuador and Central Andes in Colombia, but cap blacker, its color extending farther on to the nape; back darker brown; underparts darker gray; belly with less white, ochraceous of lower tail-coverts and flanks deeper.

RANGE.—Temperate Zone: the species, northern Ecuador and Central Andes of Colombia; the race, northeastern Ecuador.

The reasons for believing that Selater's name *citrinifrons* is applicable to the West, rather than the East Andean form were given at the time the name *orientalis* was proposed.

(2663) *Ochthœca pulchella jelskii* Tacz.

Ochthœca jelskii TACZ., P. Z. S., 1883, p. 71 (Montaña de Nancho, 7,700 ft., Peru).

Guachanamá, 1 ♂; San Bartolo, 1 ♀; Celica, 2 ♂, 2 ♀. Peru: El Tambo, 1 ♀, 1 ?; Palambla, 1 ♂.

RANGE.—Temperate Zone of southwestern Ecuador and northwestern Peru.

Differs from *O. pulchella pulchella* in having the superciliary white instead of yellow and in being slightly whiter below. The back and rump are quite as rufescent as in *pulchella* but the wing-bars are, perhaps, somewhat narrower and the flanks are less rufescent. A male from Rumicruz (9,700 ft.), east of Lake Junin, has the superciliary as in *jelskii* but the upperparts are much grayer, the wing-bars narrow, the flanks with practically no rufous. Doubtless it represents *spodionota* Berl. & Tacz.

(2667) *Ochthoeca rufipectoralis rufopectus* (Less.)¹

Tyrannulus rufopectus LESS., Echo du Monde Savant, II, No. 10, August, 1844, p. 233 (Bogotá, Col.).

Ochthæca lessoni, SCL., 1858c, p. 554 (Matos); 1860a, p. 68 (Chillanes); 1860c, p. 92 (above Puellaro); B. & T., 1884, p. 295 (Cechce; La Union; Tribulpata; Chaguarpata); 1885, p. 87 (Baños); S. & F., 1899b, p. 3 (Chaupi; Frutillas; Pun; Papallacta); GOODF., 1901, p. 701 (Pichincha; Aloag; Mojanda Pass; Papallacta); L. & R., 1922, p. 72 (Chinguil; below Nono; road to Nanegal, 9,000 ft.).

Mojanda Mts. (10,500 ft.), 1 ♂; Verdecocha, 2 ♂; Taraguacocha, 2 ♂, 1 ♀, 1 ?; Papallacta, 2 ♂, 3 ♀; Oyacachi, 4 ♂, 2 ♀; above Baeza, 2 ♂, 1 ♀; upper Sumaco, 3 ♂, 1 ♀; above Macas, 1.

RANGE.—Humid Temperate Zone: the species, Bolivia to northern Colombia; the race, northern Peru to northern Colombia.

A large series of this species, collected throughout its range, admirably illustrates its racial variations and demonstrates the intergradation of *rufopectus* with *rufipectoralis*. Throughout Colombia, the greater part of Ecuador, and northwestern Peru (El Tambo, Piura), *rufopectus* is typically represented, but in southeastern Ecuador we get our first indication of an approach toward *rufipectoralis* in the slightly deeper tone on the breast of a specimen from the Macas region. From east central Peru (Maraynioc; Rumicruz) sixteen specimens have the breast of *rufipectoralis*, the back of *rufopectus*, with a wing-bar averaging about half as wide as in *rufopectus*. These birds are referable to *tectricialis* Chapm., a race intermediate between the Bolivian and Colombian forms, described from the Urubamba region, in which the wing-bar is still narrower than in central Peruvian specimens.

The next locality represented in our series is Limbani east of Tirapata, southeastern Peru. Of five specimens from this locality three have the faint wing-bars, and in two the wing-bars are barely suggested, while the upperparts of all are nearer to *rufipectoralis* than to *tectricialis*. These birds, therefore, indicate intergradation in the most pronounced, indeed only positive, character separating *rufipectoralis* from *rufopectus*.

(2669) *Ochthoeca cinnamomeiventris* (Laf.)

Muscicapa cinnamomeiventris LAFR., Rev. Zoöl., 1843, p. 291 (Colombia).

Ochthæca cinnamomeiventris, B. & T., 1885, p. 87 (Machay; San Rafael); GOODF., 1901, p. 701 (Lloa; Pichincha); L. & R., 1922, p. 72 (Baeza).

Pagma Forest (Rhoads).

¹ Hellmayr, Arch. für Naturg., No. 10, 1919, p. 41 (pub. Nov., 1920).

Above Baeza, 4♂, 1♀; below Papallacta, 1♂; upper Sumaco, 1♂, 1♀; Asilan (7,700 ft.), Rio Upano, 5; Tambillo (8,000 ft.), Rio Upano, 2.

RANGE.—Humid Temperate Zone; Ecuador and Colombia.

These specimens average darker below than Bogotá region birds and thus suggest an approach toward *thoracica*, the Peruvian representative of this species.

(2675) *Ochthoeca diadema gratiosa* (Scl.)

Mecocerculus gratiosa SCL., P. Z. S., 1862, p. 113 (Ecuador).

Ochthoeca gratiosa, B. & T., 1884, p. 295 (Chaguarpata); S. & F., 1899b, p. 3 (Intac; Frutillas; Pun); GOODF., 1901, p. 701 (Intac; Mindo; Milligalli); MEN., 1911, p. 49 (Monte Pichincha; Chorillos); L. & R., 1922, p. 72 (below Nono; Chinguil).

Above Gualea, 6♂; Verdecocha, 2♀; above Baeza, 4♂, 1♀; upper Sumaco, 5♂, 1♀.

RANGE.—Humid Temperate Zone: the species, northern Peru to western Venezuela; the race, northern Peru to Colombia.

This race differs from *diadema* of western Venezuela chiefly in the development of rufous wing-bars, which are absent or but faintly suggested in *diadema*. A specimen from Choachi, on the Orinoco slope east of Bogotá, agrees with Mérida region birds, while another from above Fusugasugá, on the Magdalena slope of the same range, has faint wing-bars, thus indicating the intergradation of these races in the Bogotá region. Specimens from the West Andes in Ecuador have more pronounced wing-bars than those from above Baeza. Mr. Todd is quite right in making *diadema* rather than *gratiosa* the (nomenclaturally) parent form of this group.

(2672) *Tumbezia¹ salvini* (Tacz.)

Ochthoeca salvini TACZ., P. Z. S., 1877, pp. 324, 752 (Tumbez).

Peru: Tumbez, 1♂; Lamor, Piura, 1♂; Chilaco, 1♂; Viru, La Libertad, 1♀.

RANGE.—Arid Tropical Zone; coast region of northwestern Peru and extreme southwestern Ecuador.

Doubtless only the rarity in collections of *Tumbezia salvini* has prevented its pronounced generic characters from being before recognized. It has no near relationship to *Ochthoeca* (a Temperate Zone group) nor indeed to any described genus. In its narrow bill, inconspicuous rictal bristles, long tail, and general coloration it resembles

¹Chapm., Am. Mus. Novit., No. 205, 1925. p. 1.

Sisopygis more than any other genus known to me, but in its much longer tarsi, more pointed wings, slightly rounded, instead of slightly forked tail it differs conspicuously from that genus. In short, *Tumbezia* is worthy of a place in the small group of markedly distinct genera restricted to the Equatorial Arid Fauna.

Heretofore it has been known only from Tumbes, but Watkins has materially extended its range both to the east and south.

Stolzmann writes: "Assez commune aux environs de Tumbes, et je pouvais la rencontrer á chaque excursion en me dirigeant par sa voix, qui m'est bien connue. Elle se tient dans des petits fourrés et jamais je ne l'ai pas vue dans les endroits découverts. Elle se perche sur les branches peu élevées au dessus du terrain (environ 1 to 1.5 mètres), et jamais je ne l'ai pas recontrée par terre. Sa voix consiste en un sifflement monotone plaintif, assez rarement répété. Ses mouvements ressemblent á ceux du *Pyrocephalus rubineus*; en se lançant sur les insectes elle claque avec les ailes comme beaucoup d'autres Tyrans, mais pas aussi fort que le *Pyrocephalus*." (Tacz., 1877, p. 752.)

(2673) ***Mecocerculus leucophrys rufomarginata* (Lawr.)**

Ochthæca rufomarginata LAW., Ann. Lyc. Nat. Hist. N. Y., IX, 1870, p. 266 (Quito Valley, Ec.); L. & R., 1922, p. 72 (near Calacali; Lloa; Chinguil).

Ochthæca rufimarginata, B. & T., 1885, p. 87 (San Rafael); S. & F., 1899b, p. 3 (El Troje, Papallacta, Chinguil, Frutillas, specimens only); GOODF., 1901, p. 701 (Pichincha and Corazon, at about 12,000 ft.); MEN., 1911, p. 48 (Lloa).

Ochthæca rufomarginata acrophila OBERH., Proc. U. S. N. M., XXX, 1902, p. 61 (Rio Napo, Ec.).

Mojanda Mts. (10,500 ft.), 1 ♂; Pichincha, 1 ♂; Yanacocha, 2 ♂, 1 ♀, 1 ?; Taragüacocha, 2 ♂; Bestion, 2 ♂, 3 ♀; above Baeza, 1 ♀; Papallacta, 3 ♂; Oyacachi, 4 ♂, 2 ♀; upper Sumaco, 3 ♂, 1 ♀.

RANGE.—Temperate Zone: the species, south central Peru to northeastern Venezuela (and Roraima ?); the race, northern Peru to the northern end of the central Andes in Colombia.

I have before discussed the relationships of this group (Am. Mus. Novit., No. 118, 1924, p. 1) but conclude now that possibly they are best expressed by treating all the forms as subspecies of *leucophrys*.

(2679) ***Mecocerculus stictopterus stictopterus* (Scl.)**

Elainia stictoptera SCL., P. Z. S., 1858, p. 554, pl. 146, fig. 2 (Matos, Ec.); 1860b, p. 79 (Lloa); 1860a, p. 68 (Chillanes).

Mecocerculus stictopterus, B. & T., 1884, p. 295 (Cechce); S. & F., 1899b, p. 3 (Pun; Papallacta; Chaupi; Frutillas); L. & R., 1922, p. 72 (near Nanegal and Mindo).

Ochthæca stictoptera, GOODF., 1901, p. 701 (Pichincha; Corazon; Papallacta; Mojanda).

Mecocerculus alutus OBERH., Proc. U. S. N. M., XXV, p. 63 ("Ecuador"; type No. 42422 A. M. N. H.).

"Ecuador," 1 (type of *M. alutus*); Verdecocha, 2 ♂; Salvias, 2 ♂; Taraguacocha, 2 ♂, 3 ♀; Guachanamá, 1 ♂, 1 ♀; Tambillo,* Rio Upano, 1; above Baeza, 1 ♂, 1 ♀; Oyacachi, 2 ♂, 5 ♀; upper Sumaco, 3 ♂, 4 ♀.

RANGE.—Humid Temperate Zone: the species, from southern Peru to Venezuela; the race, northern Peru to Venezuela.

Ecuadorean birds are topotypical. The Peruvian form, *tæniopterus* Cab., differs chiefly in having greenish instead of ochraceous margins to the inner wing-quills. The type of *M. alutus* is a much-faded specimen of *stictopterus*.

(2681) ***Mecocerculus calopterus* (Scl.)**

Formicivora caloptera SCL., P. Z. S., 1859, p. 142 (Pallatanga, Ec.); 1860f, p. 429 (Pallatanga).

Mecocerculus calopterus, B. & T., 1883, p. 553 (Chimbo); 1884, p. 295 (Cechce). Chimbo, 1 ♀; Punta Santa Ana, 1 ♂.

RANGE.—Subtropical Zone, northern Peru north to Ecuador.

In Ecuador recorded only from the Pacific slope.

(2682) ***Mecocerculus pæcilocercus* (Scl. & Salv.)**

Serpophaga pæcilocerca SCL. & SALV., Nomen. Av. Neotr., 1873, p. 158 (Puellaró, Ec.); GOODF., 1901, p. 703 (Nanegal).

Mecocerculus pæcilocercus, B. & T., 1885, p. 87 (Baños); 1884, p. 295 (Chaguar-pata); S. & F., 1899b, p. 3 (Niebli); MEN., 1911, p. 50 (Guailea); L. & R., 1922, p. 72 (Niebli; Tumbaco; road to Mindo, 7,500 ft.).

Pallatanga, 1 ♂; El Chiral, 2 ♂, 2 ♀, 1 ?; San Bartolo, 1 ♂, 1 ?; Celica, 2 ♂, 2 ♀; Baeza, 2 ♂, 3 ♀; lower Sumaco, 1 ♂, 1 ♀; upper Sumaco, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone, southern Peru to Colombia.

Apparently does not vary racially throughout its range.

(2685) ***Ochthornis littoralis* (Pelz.)**

Elainea littoralis PELZ., Orn. Bras., 1869, p. 108 (Borba, Rio Madeira, Brazil) *Ochthornis littoralis*, SCL., Cat. Bds. B. M., XIV, 1888, p. 31 (Sarayacu—Buckley).

RANGE.—Amazonia and Guiana.

We have no Ecuadorean specimens.

(2689) ***Fluvicola climazura atripennis* Scl.**

Fluvicola atripennis SCL., P. Z. S., 1860, p. 280 (Babahoyo, Ec.); Tacz., 1877, p. 325 (Pozo de Lambedero); B. & T., 1883, p. 553 (Guayaquil; Chimbo); 1885, p. 87 (Yaguachi); S. & F., 1899b, p. 3 (Vinces; Balzar).

Chone, 5♂, 3♀; Daule, 1♂; Guayaquil, 2♂; Bucay, 3♂; Santa Rosa, 3♂, 1♀. Peru: Tumbes, 2♂, 3♀.

RANGE.—Tropical Zone; Equatorial Arid Fauna from northwestern Peru to Manaví, Ec.

Greatly to my surprise I find that this race of the Pacific coast is barely separable from *F. c. climazura* of Bahia and southward in eastern Brazil. Ecuadorean birds have the wings and their coverts blacker, the back averaging grayer, than in our seven specimens of true *climazura*, but beyond these slight characters I detect no difference between birds of the Atlantic and Pacific coasts. Thus we have an apparent hiatus in the range of this species of almost the breadth of the continent.

(2713) ***Colonia colona colona* (Vieill.)**

Muscicapa colonus VIEILL., Nouv. Dict. d'Hist. Nat., XXI, 1818, p. 448 (Paraguay).

Copurus colonus, S. & F., 1899b, p. 4 (Gualaquiza).

Zamora, 4♂, 4♀; ? 1♀.

RANGE.—Tropical Zone: the species, Paraguay to eastern Colombia; the race, Paraguay to southeastern Ecuador.

Eight Zamora birds of both sexes appear to be quite typical of this race, but one adult female is apparently not separable from *fuscicapilla*. It is, however, very near some specimens from eastern Brazil and is, perhaps, to be regarded as an intergrade rather than as an actual example of *fuscicapilla*. Specimens from the Napo region are typical of *fuscicapilla*, thus expressing a faunal difference between these two localities which is not supported by most species common to them.

(2714) ***Colonia colona fuscicapilla* (Scl.)**

Copurus fuscicapillus SCL., P. Z. S., 1861, p. 381 ("Bogotá").

Copurus filicauda, SCL., 1854, p. 113 (Quijos).

Copurus leuconotus, SCL., 1858a, p. 71 (Napo).

Copurus colonus, GOODF., 1901, p. 702 (Archidona).

Rio Suno, 3♂, 3♀; below San José, 1♂, 4♀.

RANGE.—Tropical Zone, from the Napo region of eastern Ecuador to the east Bogotá region of Colombia.

The specimens closely resemble topotypical examples and show no approach to true *colona*, which, as we have seen, occurs in southeastern Ecuador.

(2715) *Colonia leuconota leuconota* (Lafr.)

Copurus leuconotus LAFR., Rev. Zoöl., 1842, p. 335 ("Habitat in Bolivia" = "Bogotá," Col., Hellm.; Honda, Col., Chapm.; Bull. A. M. N. H., XXXVI, 1917, p. 432); SCL., 1860e, p. 294 (Esmeraldas); S. & F., 1899b, p. 4 (Peripa); HART., 1902, p. 607 (Pambilar); MEN., 1911, p. 50 (Santo Domingo).

Esmeraldas, 2 ♂; Rio de Oro, 1 ♀.

RANGE.—Tropical Zone: the species, western Ecuador to Nicaragua and Guiana; the race, western Ecuador to Nicaragua.

Ecuadorean specimens are evidently typical. Although this is apparently a representative of the trans-Andean *C. colona*, it is noteworthy that its range extends eastward to Guiana, where it is represented by *C. l. pæcilonota* (Cab.).¹

(2719) *Muscisaxicola alpina alpina* (Jard.)

Tænioptera alpina JARD., Contrib. Ornith., 1849, p. 47, pl. 21, (high Andes at Quito, "rarely descending below snow").

Muscisaxicola albifrons, SCL., 1860b, p. 78 (Panza).

Muscisaxicola alpina, SCL., 1860c, p. 92 (above Puellaro); B. & T., 1885, p. 87 (Chimborazo; San Rafael); S. & F., 1899b, p. 4 (Chaupi; Vallevicioso); GOODF., 1901, p. 702 (Pichincha, 15,000 ft.); Guamani Pass, 16,000 ft.); MEN., 1911, p. 50 (Mozo Pichincha; crater of Pichincha); RHOADS, 1912, p. 148 (Paramo of Pichincha); L. & R., 1922, p. 72 (Pichincha, 13,000 to 14,500 ft.).

South side of Pichincha, 13,600 ft. (Rhoads).

Pichincha, 3 ♂; Urbina, 1 ♀; Chimborazo, 8 ♂, 4 ♀; Antisana, 1 ♂, 1 ♀; upper Cerro Huamani, 1 ♂.

RANGE.—Paramo Zone: the species, central Ecuador to the northern end of the Central Andes and the Bogotá region of Colombia.

A distinct species possibly more nearly related to *M. albilora* than to any other species of the genus. The Central Andean form of Colombia, *M. a. columbiana*, is slightly darker. A specimen from the Paramo of Guasca, near Bogotá (whence the species has not before been recorded), agrees with the Central Andean form in color but is smaller (wing 112 mm.).

¹ See Bangs and Penard, Bull. M. C. Z., 1918, p. 74.

(2728) *Muscisaxicola albilora*¹ Lafr.

Muscisaxicola albilora LAFR., Rev. Zool., 1855, p. 60 (vicinity of Santiago, Chile, selected by Bangs and Penard in Bull. M. C. Z., LXIII, 1919, p. 27).

Taraguacocha, 1 ♂, 1 ♀.

RANGE.—Paramo Zone from central Chile to southern Ecuador.

These specimens agree essentially with others from Chile, Peru, and Bolivia, which have been compared with Lafresnaye's type. The species has not before been recorded from Ecuador.

(2734) *Muscisaxicola maculirostris rufescens* Berl. & Tacz.

Muscisaxicola maculirostris rufescens BERL. & TACZ., P. Z. S., 1896, p. 359 (Yocon, Ec.); HART., 1898, p. 486 (Mt. Cayambe); MEN., 1911, p. 51 (Tumbaco); L. & R., 1922, p. 72 (Quito; Chaupicruz).

Muscisaxicola maculirostris, SCL., 1860c, p. 92 (Calacali); B. & T., 1884, p. 295 (Cayandeled).

Muscisaxicola rufescens, S. & F., 1899b, p. 4 (Pichincha).

Riobamba; Cajabamba; Cumbaya, Guangopolo, 3 miles east of Quito (Rhoads).

Quito, 1 ♂, 2 ♀; Chimborazo, 2 ♂, 2 ♀; Mocha, 1 ♂; El Paso, near Nabon, 1 ♂, 5 ♀; Cumbaya, 2 ♂, 1 ♀.

RANGE.—Arid Temperate and Paramo Zones: the species, Bolivia and northern Chile to northern Ecuador; the race, Ecuador.

Our series presents no racial variation, specimens from southern Ecuador showing no approach to specimens of true *maculirostris* from northern Peru.

(2740) *Muscigralla brevicauda* Lafr. & d'Orb.

Muscigralla brevicauda LAFR. & D'ORB., Syn. Av., I, 1837, p. 61 (Tacna, "Peru"); SCL., 1860d, p. 281 (Babahoyo); TACZ., 1877, p. 325 (Tumbez); S. & F., 1899b, p. 4 (Balzar; Santa Elena).

La Plata Is., 1 ♀; Santa Elena, 4 ♂, 1 ♀; Colonche, 1 ♂; Chongoncito, 1 ♀; Guayaquil, 5 ♂, 3 ♀; Duran, 4 ♂, 2 ♀; Jambeli, 1 ♂; Santa Rosa, 2 ♂; Casanga, 1 ♀.

RANGE.—Pacific coast, from northern Chile to Santa Elena, Ec.

I am unable to detect any geographic variation in a large series of this species from throughout its range. It is so distinct that no clue exists of its geographic origin.

¹ *Muscisaxicola rubricapilla* Phil. & Landb., 1865.

(2742) *Platyrrhynchus senex* Scl. & Salv.

Platyrrhynchus senex SCL. & SALV., P. Z. S., 1880, p. 156 (Sarayacu, Ec.).

RANGE.—Eastern Ecuador and eastern Peru.

We have no specimens of this strongly marked species.

(2751) *Platytriccus albogularis albogularis* (Scl.)

Platyrrhynchus albogularis SCL., P. Z. S., 1860, p. 68 (Pallatanga, Ec.); 1860c, p. 92 (Nanegal); HART., 1898, p. 486 (Chimbo); S. & F., 1899b, p. 4 (Rio Peripa); GOODF., 1901, p. 702 (San Nicolas; Gualaes); HART., 1902, p. 706 (Paramba).

Platyrrhynchus albogularis, SCL., 1860e, p. 295 (Esmeraldas); TACZ., 1877, p. 332 (Palma); B. & T., 1883, p. 553 (Chimbo); 1885, p. 88 (Machay).

Esmeraldas, 3♂, 1♀; Mindo, 2♂, 1♀; Naranjo, 1♂, 1♀; Bucay, 1♂; Chimbo, 2♂; Chimbo and Coco, 1♂; La Chonta, 1♀; near Zaruma, 1♂.

RANGE.—Tropical Zone: the group, Paraguay to Mexico; the race, western Ecuador to Costa Rica.

This race appears to be a representative of the *P. mystaceus* group of the interior of South America and of *P. cancrominus* of Central America. In the Santa Marta region it is represented by *P. a. neglectus* Todd, but it apparently does not intergrade with *P. mystaceus insularis* of northern South America or with *cancrominus* of Central America. In eastern Ecuador and eastern Peru it is represented by the very closely allied *P. albogularis zamorae* with which it intergrades by individual variation.

(2751a) *Platytriccus albogularis zamorae* Chapm.

Platytriccus albogularis zamorae CHAPM., Am. Mus. Novit., No. 118, 1924, p. 5 (Zamora, Ec.).

Zamora, 1♂, 1♀; Sabanilla, 1♂; below San José, 3♀; lower Sumaco, 3♂, 1♀; Baeza, 1♀.

Subspecific Characters.—Nearly related to *Platytriccus albogularis albogularis* (Scl.) of western Ecuador to Costa Rica, but upperparts slightly more rufescent; underparts paler, less yellow; the horn-colored edge of the mandible wider, in some specimens occupying the anterior half of the mandible.

RANGE.—Chiefly Subtropical Zone; eastern Ecuador to eastern Peru.

Platytriccus albogularis does not appear to have been recorded from eastern Ecuador, and I find but one record from Peru; therefore, our capture of it at a number of localities is somewhat surprising. This proposed new form has the throat quite as white as in *albogularis*, and thus shows no approach toward *P. mystaceus*, which it doubtless represents.

(2752) *Placostomus coronatus coronatus* (Scl.)

Platyrrhynchus coronatus SCL., P. Z. S., 1858, p. 71 (Rio Napo, e. Ec.); S. & F., 1899b, p. 4 (Valle del Santiago).

Rio Suno, 2 ♂, 3 ♀; below San José, 3 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, eastern Bolivia to Costa Rica and Guiana; the race, eastern Bolivia to eastern Colombia.

These are topotypical specimens. A Bolivian example is paler above and below and may be racially separable.

(2752a) *Placostomus coronatus superciliaris* (Lawr.)

Platyrrhynchus superciliaris LAW., Ibis, 1863, p. 184 (Lion Hill, Panama).

Platyrrhynchus coronatus, S. & F., 1899b, p. 4 (Rio Peripa); HART., 1902, p. 607 (Lita; Cacha Jacu).

Rio de Oro, 1 ♂, 1 ♀.

RANGE.—Tropical Zone, western Ecuador to Costa Rica.

These specimens agree with the type of *superciliaris* and differ from a topotypical example of true *coronatus* in being yellower throughout. The difference between the two, however, is, in my opinion, of only subspecific value.

(2755) *Craspedoprion olivaceus æquinoctialis* (Scl.)

Cyclorhynchus æquinoctialis SCL., P. Z. S., 1858, p. 70 (Rio Napo, Ec.); 1858d, p. 150 (Rio Napo).

Rio Suno, 1 ♂, 3 ♀.

RANGE.—Tropical Zone: the species, southeastern Brazil to Mexico; the race, eastern Ecuador and eastern Colombia.

I should include the following forms in this group:

1. *Craspedoprion olivaceus olivaceus*. Southeastern Brazil to Bolivia (and Peru?).
2. *C. o. guianensis*. Guianas, northern Brazil, and Venezuela.
3. *C. o. æquinoctialis*. Eastern Ecuador and eastern Colombia.
4. *C. o. flavus*. Santa Marta region and Caribbean coast of Venezuela.
5. *C. o. badus*. Eastern Panama.
6. *C. o. brevirostris*. Western Panama to southern Mexico.

(2755a) *Craspedoprion pacificus* Chapm.

Craspedoprion pacificus CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 174 (Juntas de Tamaná, Col.).

Rhynchocyclus æquinoctialis, HART., 1898, p. 487 (Cachaví).

Craspedopryon æquinoctialis, HELLM., P. Z. S., 1911, p. 1127 (n. w. Ec.).

RANGE.—Tropical Zone; Colombian-Pacific Avifauna.

We have no Ecuadorean specimens, but Hellmayr's description shows that the bird recorded by Hartert (*loc. cit.*) should be referred to this species.

(2756) *Craspedopryon fulvipectus* (Scl.)

Cyclorhynchus fulvipectus SCL., P. Z. S., 1860, p. 92 (Nanegal, Ec.).

Rhynchocyclus fulvipectus, B. & T., 1885, p. 90 (Mapoto; Machay).

Mindo, 1 ♂; Baeza, 1 ♂, 1 ♀; lower Sumaco, 1 ♂; Zamora, 1 ♀.

RANGE.—Subtropical Zone, Bolivia to Colombia; western as well as eastern Ecuador.

A specimen from Locotal (5,800 ft.) in eastern Bolivia, greatly extends the known range of this species. It agrees with a small series from southwestern Colombia. Eastern Ecuadorean birds average slightly larger.

(2761) *Rhynchocyclus sulphurescens æquatorialis* Berl. & Tacz.

Rhynchocyclus æquatorialis BERL. & TACZ., P. Z. S., 1883, p. 556 (Chimbo); S. & F., 1899b, p. 9 (Babahoyo; Savana de Guayaquil; Balzar).

Rhynchocyclus sulphurescens, TACZ., 1877, p. 326 (Lechugal).

Rhynchocyclus peruvianus, B. & T., 1883, p. 556 (Guayaquil; Chimbo); GOODF., 1901, p. 705 (San Nicolas).

Esmeraldas, 1 ♀; Chongoncito, 3 ♂, 3 ♀; Guayaquil, 2 ♂, 1 ?; Duran, 1 ♂, 2 ♀; Santa Rosa, 2 ♀; La Chonta, 1 ♀; La Puente, 1 ♂; Portovelo, 2 ♂, 2 ♀; Casanga, 2 ♂, 1 ?; Rio Pullango, 2 ♂, 1 ♀; Lunamá, 1 ♀; Celica, 1 ♀; Guainche, 2 ♂, 1 ♀; Alamor, 2 ♀. Peru: Milagros, 1 ♂, 1 ♀; Paletillas, 3 ♂; Palambla, 2 ♂.

RANGE.—Tropical Zone: the species, Paraguay to Costa Rica; the race, western Ecuador and northwestern Peru.

(2762) *Rhynchocyclus sulphurescens peruvianus* Tacz.

Rhynchocyclus peruvianus TACZ., P. Z. S., 1874, p. 537 (Ropaybamba, Peru).

Rhynchocyclus peruvianus æquatorialis, B. & T., 1885, p. 90 (Mapoto; Machay).

Sabanilla, 2 ♀; Rio Suno, 1 ♂, 1 ♀; San José, 1 ♂.

RANGE.—Tropical Zone; eastern Ecuador and eastern Peru.

These specimens agree with a small series from eastern Peru and differ as a whole from western Ecuadorean birds in being darker green above, with a darker, less purely gray crown (which is less clearly defined from the back); in having the underparts somewhat duller, and the edge of the mandible usually horn-color.

(2765) *Rhynchocyclus marginatus flavotectus* Hart.

Rhynchocyclus megacephala flavotectus HART., Nov. Zööl., 1902, p. 608 (Paramba, Ec.).

Esmeraldas, 1; Guayaquil, 3.

RANGE.—Tropical Zone: the species, western Ecuador to Costa Rica; the race, western Ecuador.

I have already commented on the probable status of this form (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 436).

(2766) *Rhynchocyclus poliocephalus* Tacz.

Rhynchocyclus poliocephalus TACZ., Orn. Per., II, 1885, p. 285 (Nauta, n. e. Peru).

Rio Suno, 4♂, 4♀. Peru: Pomará, Marañon, 1♂; Perené, 1. Colombia: Florencia, 1♂, 1♀; La Morelia, 2♂.

RANGE.—Tropical Zone: the species, eastern Peru to Guiana.

These specimens represent but one race and are, doubtless, fairly typical of true *poliocephalus*. Hellmayr¹ restricts this race to upper Amazonia, and refers lower Amazon, Orinoco, and Guiana specimens to *poliocephalus sclateri*, but our specimens from within that region do not appear to be separable from upper Amazonian birds. Certainly the type of *klagesi* can be repeatedly matched by Ecuadorean specimens. We have also skins from Mt. Duida, British Guiana, Tapajoz, and Tocantins, seven in all.

(2768) *Rhynchocyclus flaviventris viridiceps* Scl. & Salv.

Rhynchocyclus viridiceps SCL. & SALV., P. Z. S., 1873, p. 280 (Pebas, Peru).

Zamora, 1♂, 1♀; Rio Suno, 1♀; San José, 2♂.

RANGE.—Tropical Zone: the species, eastern Brazil to northern Colombia; the race, eastern Peru to southeastern Colombia.

Resembling Perené (Peru) specimens.

(2771a) *Ramphotrigon fuscicauda* Chapm. (Plate XXIX)

Ramphotrigon fuscicauda CHAPM., Amer. Mus. Novit., No. 187, 1925, p. 5 (lower Rio Suno, e. Ec.).

Rio Suno, 1♀.

¹ Nov. Zööl., 1910, p. 298.

Specific Characters.—Resembling *Ramphotricon ruficauda* (Spix) of the Amazon, but rump and upper tail-coverts olive-green; wings and tail fuscous-black, narrowly margined with buffy citrine; wing-coverts tipped with cinnamon.

RANGE.—Known only from the type.

(2773) **Todirostrum cinereum cinereum** (Linn.)

Todus cinereus LINN., Syst. Nat., I, 1766, p. 178 (Surinam).

Todirostrum cinereum, SCL., 1858b, p. 458 (Zamora); B. & T., 1885, p. 89 (Mapoto).

Zamora, 3 ♂; Rio Suno, 2 ♂; below San José, 3 ♂; lower Sumaco, 1 ♂; below Oyacachi, 1 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, southern Brazil to southern Mexico; the race, Amazonia to Guiana and western Colombia.

These specimens, in common with others from Peru, have the black on the crown more extensive than in specimens from the eastern part of the range of the race. The white frontal markings characteristic of *sclateri* are represented in some specimens of *cinereum* by more or less faint traces of yellow (which finds full expression in *T. poliocephalum*); and thirteen out of ninety-five specimens have white feathers in the center of the crown. These thirteen specimens represent practically the entire geographic range of the race.

(2775) **Todirostrum sclateri** Cab. & Heine

Todirostrum sclateri CAB. & HEINE, Mus. Heine, II, 1859, p. 50 (Peru); B. & T., 1883, p. 553 (Guayaquil; Chimbo); 1885, p. 88 (Yaguachi); HART., 1898, p. 486 (Chimbo; Paramba); S. & F., 1899b, p. 5 (La Concepcion; Intac; Savana de Guayaquil; Vinces; Balzar); GOODF., 1901, p. 702 (Intag; Santo Domingo; San Nicolas); HART., 1902, p. 706 (Lita; San Javier); MEN., 1911, p. 51 (Guala; Santo Domingo).

Todirostrum cinereum, SCL., 1860d, p. 283 (Babahoyo); Tacz., 1877, p. 325 (Tumbez).

Bucay (Rhoads).

Chone, 3 ♂, 1 ♀; Rio de Oro, 2 ♂, 2 ♀; Chongoncito, 1 ♂; Duran, 1 ♀; Bucay, 4 ♂, 1 ♀; Rio Jubones, 1 ♂; La Puente, 1 ♂; Santa Rosa, 1 ♂, 1 ♀; Portovelo, 5 ♂, 3 ♀; Casanga Valley, 1 ♂; Punta Santa Ana, 1 ♀; Guainche, 1 ♂, 1 ♀; Cebollal, 1 ♂, 1 ♀; Alamor, 2 ♂, 1 ♀; Rio Pullango, 1 ♂. Peru: Sullana, 2 ♂, 2 ♀; Samate, 1 ♀.

RANGE.—Tropical Zone, northwestern Peru to southwestern Colombia.

Obviously a representative of *T. cinereum* but apparently specifically distinct (see Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 438). All our specimens have more or less evident traces of white at the base of the bill above, and twenty-three out of forty-seven have white feathers in the center of the crown, apparently a mutational, rather than an albinistic character.

(2779) **Todirostrum nigriceps** *Scl.*

Todirostrum nigriceps SCL., P. Z. S., 1855, p. 66, pl. 84; Cat. Bds. B. M., XIV, 1888, p. 72 (Rio Napo).

Naranjo, 1 ♀.

RANGE.—Tropical Zone, eastern and western Ecuador; Panama.

Our single specimen agrees with topotypes.

(2780) **Todirostrum calopteryx** *Scl.*

Todirostrum calopteryx SCL., P. Z. S., 1857, p. 82, pl. cxxv, fig. 1 (Rio Napo).

Rio Suno, 3 ♂.

RANGE.—Tropical Zone, eastern Ecuador.

An apparent representative of *T. pulchellum* of southeastern Peru.

NOTE.—Brabourne and Chubb (Bds. So. Am., p. 273) record *Todirostrum maculatum signatum* from eastern Ecuador, and although it is doubtless found there, I am unable to find a definite record of its occurrence.

(2790) **Todirostrum capitale** *Scl.*

Todirostrum capitale SCL., P. Z. S., 1857, p. 83, pl. cxxv, fig. 2 (Rio Napo); 1858a, p. 70 (Napo).

Todirostrum picatum SCL., 1858a, p. 70 (Napo); 1858d, p. 149 (Rio Napo).

Rio Suno, 1 ♂ ad., 1 ♂ im.; 6 ♀ ad.; below San José, 5 ♂ ad., 2 ♀ ad.; Sarayacu, 2 ♂.

RANGE.—Tropical Zone, eastern Ecuador.

The young male agrees with the adult female in color except for the crown, which, instead of being rufous, is olive-green with a single black feather. All three specimens having a rufous crown are sexed by the native collector Olalla as female.

(2793a) **Euscarthmus latirostris caniceps** *Chapm.*

Euscarthmus latirostris caniceps CHAPM., Am. Mus. Novit., No. 118, 1924, p. 7 (Flores, Col.).

Euscarthmus latirostris, SCL., Cat. Bds. B. M., XIV, 1890, p. 81 (Rio Napo).

Zamora, 2.

Subspecific Characters.—Similar to *Euscarthmus latirostris latirostris* Pelz., of Brazil, but brownish markings on the forehead, lores, and orbits darker; crown darker, dark grayish olive rather than light brownish olive; back darker olive-green, the side and flanks more strongly washed with olivaceous; the abdominal region more washed with yellow.

RANGE.—Tropical Zone; eastern Ecuador and eastern Colombia.

(2800) **Euscarthmus striaticollis zosterops** Pelz.

Euscarthmus zosterops PELZ., Orn. Bras., 1869, p. 173 (Maribitañas, Brazil); S. & F., 1899b, p. 5 (Valle del Rio Santiago).

RANGE.—Tropical Zone, northwestern Brazil, eastern Ecuador, and south-eastern Colombia.

I have seen no Ecuadorean specimens, but two examples from Florencia, southeastern Colombia, which I provisionally refer to this form, are so unlike specimens of *striaticollis* from Bahia as to suggest their specific distinctness from that form.

(2812) **Euscarthmus granadensis** (Hartl.)

Todirostrum granadense HARTL., Rev. Zoöl., 1843, p. 289 (New Granada).

Euscarthmus granadensis, S. & F., 1899b, p. 5 (Pun).

RANGE.—Chiefly humid Temperate Zone, northern Ecuador and Colombia.

We have no Ecuadorean specimen of this species, which has been recorded in Ecuador only by Salvadori and Festa from Pun, in the humid Temperate Zone of the northeastern part of the Republic. Specimens in our collection from Almaguer, in southern Colombia, show no approach to *E. pyrrhops*, the representative of *granadensis* in southern Ecuador and northern Peru.

(2813) **Euscarthmus pyrrhops** Cab.

Euscarthmus pyrrhops CAB., J. f. O., 1874, p. 98 (Tambopata).

Euscarthmus ocularis SALV., Ibis, 1876, p. 493 ("Puna Is., Ec").

Near Loja, 1 ♂, 1 ♀, 1 ?.

RANGE.—Southern Ecuador to southern Peru. (The record from Puna Is. is obviously incorrect).

A close ally and obvious representative of *E. granadensis* from which it differs in having the loreal region, etc., buffy instead of white.

(2796) **Pœcilotriccus ruficeps ruficeps** (Kaup)

Todirostrum ruficeps KAUP, P. Z. S., 1851, p. 52 ("Mexico" = e. Colombia).

Todirostrum lenzi BERL., J. f. O., 1884, p. 249, pl. I, figs. 1 and 2 (Bucaramanga, Col.).

Pœcilotriccus ruficeps, B. & T., 1885, p. 89 (Baños).

Todirostrum rufigene, GOODF., 1901, p. 702 (Baeza).

Pœcilotriccus ruficeps lenzi, CHAPM., Am. Mus. Novit., No. 118, 1924, p. 6.

Baeza, 3 ♂, 4 ♀, 1 ?; below Oyacachi, 1 ♂; upper Sumaco, 4 ♂, 1 ♀.

RANGE.—Subtropical Zone: the species, northern Peru to northern Colombia;

the race, eastern Andes of Colombia and Ecuador; central Andes, head of the Magdalena Valley.

Dr. Hellmayr writes me that on examination Kaup's type proves to be the bird of eastern Colombia, which we have heretofore known as *P. r. lenzi*. The central Colombian form to which we have applied Kaup's name is evidently, therefore, nameless.

(2795) *Pæcilotriccus ruficeps rufigenis* (Scl. & Salv.)

Todirostrum rufigene SCL. & SALV., P. Z. S., 1877, p. 522 (Monji, Ec.).

Todirostrum ruficeps, SCL., 1859a, p. 144 (Pallatanga).

Pæcilotriccus rufigenis, B. & T., 1884, p. 295 (Cayandeled); S. & F., 1899b, p. 5 (Vinces; Balzar).

Pæcilotriccus ruficeps rufigenis, CHAPM., Am. Mus. Novit., No. 118, 1924, p. 6 (crit.).

Pallatanga, 2.

RANGE.—Subtropical Zone; western Ecuador.

I am unable to place Monji, the type-locality of this species, but it is evidently in the Subtropical Zone of western Ecuador. A comparison of this form with its allies is presented in American Museum Novitates, as quoted above.

(2818) *Pseudotriccus pelzelni* Tacz. & Berl.

Pseudotriccus pelzelni TACZ. & BERL., P. Z. S., 1885, p. 88 (Machay; Mapoto; e. Ec.).

Baeza, 1 ♂; lower Sumaco, 11 ♂, 10 ♀.

RANGE.—Subtropical Zone; eastern Ecuador and eastern Colombia.

A specimen from Buena Vista, Col., is typical.

(2819) *Pseudotriccus annectens annectens* (Salvad. & Festa)

Pseudomyiobius annectens SALVAD. & FESTA, Boll. Mus. Tor., XV, 1899, p. 12 (Gualea, w. Ec.).

Pseudotriccus pelzelni, GOODF., 1901, p. 703 (Milligalli; Gualea = *P. annectens*; *vide* Hellm. *in litt.*).

El Chiral, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone; western Ecuador and western Colombia.

Ecuadorean and Colombian specimens agree. While presumably a representative of *P. pelzelni*, the two forms impress me as being spe-

cifically distinct. The eastern Panama race, *berlepschi*, I should consider a race of *annectens* rather than of *pelzelni*. In appearance as well as in distribution it is certainly nearer to the former than to the latter.

(2820) *Cænotriccus ruficeps* (Lafr.)

Muscicapa (Todiostrostrum) ruficeps LAFR., Rev. Zoöl., 1843, p. 291 (Colombia).

Cænotriccus ruficeps, S. & F., 1899b, p. 6 (Pun); L. & R., 1922, p. 72 (road to Gualea).

Serpophaga ruficeps, GOODF., 1901, p. 703 (Mindo).

Asilan (7,700 ft.), Rio Upano, 2; Oyacachi, 1 ♂.

RANGE.—Chiefly humid Temperate Zone, southern Peru to Colombia.

In these specimens the crown and underparts are darker than the average Colombian birds, and should these differences become more pronounced as we proceed southward it may be necessary to recognize the provisionally described *C. r. haplopteryx* Berl. and Stolz.¹ of eastern Peru.

(2824) *Lophotriccus spicifer* (Lafr.)

Todiostrostrum spiciferum LAFR., Rev. Zoöl., 1846, p. 363 ("Brasilia"); SCL., 1858a, p. 70 (Napo).

Rio Suno, 4 ♂, 1 ♀; below San José, 1 ♂.

RANGE.—Tropical Zone, Amazonia.

These specimens agree with a female from southeastern Colombia and all are larger and have longer crests with larger, blacker centers than a specimen from Faro on the lower Amazon.

(2825) *Lophotriccus squamæcristatus squamæcristatus* (Lafr.)

Todiostrostrum squamæcristatus LAFR., Rev. Zoöl., 1846, p. 363 (Bogotá).

Todiostrostrum squamæcristatum, SCL., 1858a, p. 70 (Napo); 1859a, p. 144 (Palatanga); 1860d, p. 283 (Babahoyo); 1860e, p. 295 (Esmeraldas).

Orchilus pileatus, TACZ., 1877, p. 332 (Palmal).

Lophotriccus squamicristatus, B. & T., 1883, p. 553 (Chimbo); 1884, p. 296 (Pedregal; Surupata); HART., 1898, p. 486 (Chimbo); S. & F., 1899b, p. 6 (Vinces; Balzar; Rio Peripa).

Lophotriccus squamicristatum, HART., 1902, p. 607 (Pambilar).

Lophotriccus squamæcristatus, MEN., 1911, p. 52 (Mindo; Gualea).

Euscarthmus squamicristatus, GOODF., 1901, p. 703 (San Nicolas; Santo Domingo; Guanacillo).

Bucay; junction of Chanchan and Chiguancay (Rhoads).

¹ P. Z. S., 1896, p. 361.

Esmeraldas, 4♂, 1 ?; Coast of Manaví, 1 ♀, 1 ?; Chone, 2♂; Rio de Oro, 2 ?; Chongon Hills, 1♂, 1 ♀, 1 ?; Naranjo, 1♂, 1 ♀; Bucay, 1♂; Rios Coco and Chimbo, 2♂, 2 ♀; Pallatanga, 1♂; Rio Jubones, 4♂; La Chonta, 2♂; Santa Rosa, 4♂; La Puente, 1♂, 2 ♀; Zaruma, 2♂, 2 ♀; Punta Santa Ana, 1♂, 2 ♀; Las Piñas, 1♂, 1 ?; Salvias, 2 ♀; Alamor, 3♂, 2 ♀; Cebollal, 4♂, 2 ♀.

RANGE.—Chiefly Subtropical Zone: the species, Peru to Costa Rica and east to northern Venezuela; the race, Subtropical Zone in Colombia; chiefly Tropical in western Ecuador.

With much additional material, including an excellent series of *L. s. luteiventris* Tacz.¹ from Costa Rica in Dr. Dwight's collection, I now conclude that *luteiventris* is restricted to Costa Rica and Panama, while the range of true *squamæcristatus* includes not only the three Andean ranges of Colombia but also the tropical and lower subtropical region of western Ecuador. While it is true, as I have before pointed out (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 443), that western Ecuadorean birds agree with *luteiventris* in size, the entire range of variation in this respect is so slight that I am more impressed by their resemblance in color to the Colombian rather than the Costa Rica-Panama race, and I therefore refer them to the former. The latter are distinguishable by the greater extent of yellow below. This is most pronounced on the flanks and abdomen, but yellow is also evident on the breast and usually on the throat. Colombian birds, including those from eastern Colombia, are, in a degree, intermediate, having more yellow below than the average western Ecuadorean bird, and the extreme in this respect is reached in eastern Ecuador and Peru, when the underparts are largely grayish. Males of both races, it should be added, are, as a rule, more heavily streaked below than females.

Measurements of Males

	No.	Wing mm.	Tail mm.
Bonilla, Costa Rica	2	49-51.5	36-38.5
Aquinares, Costa Rica	6	49-52	36-40
Tacarcuna, e. Panama	5	47.5-52	35-41
West Andes, Col.	3	50-51.5	40-41
Central Andes, Col.	2	52-52.5	39-42
East Andes, Col.	3	50-52	41-44
Esmeraldas, n. w. Ec.	5	48-48.5	36-38
Chimbo, w. Ec.	3	47-50	35-39
Santa Rosa, w. Ec.	2	49-50	37.5-38.5
Alamor, s. w. Ec.	3	47-51	35-38
Central Peru	3	50-51	37-41

¹ Dr. Hellmayr calls my attention to the fact that *luteiventris* Tacz. (Orn. Per., II, 1884, p. 231, ex Berl. MS.) from Chiriqui antedates *minor* Cherrie, 1891.

(2825a) *Lophotriccus squamæcristatus pileatus* (Tsch.)

Euscarthmus pileatus TSCH., Arch. für Naturg., 1844, p. 273 (Peru).

Lophotriccus squamæcristatus, B. & T., 1885, p. 89 (Machay; Mapoto).

Rio Suno, 3 ♀; lower Sumaco, 5 ♂, 1 ♀; below San José, 2 ♂, 1 ♀. Peru: Chaupe, 1 ♂, 4 ♀.

RANGE.—Tropical and Subtropical Zones, eastern Peru and eastern Ecuador.

Three specimens from Chinchas and Huachipi in east-central Peru, kindly loaned me by the Field Museum, doubtless represent true *pileatus*. They have the throat more heavily streaked than in our specimens, but the two series are not seasonally comparable, and hence no satisfactory results can be drawn from their study.

(2829a) *Orchilus atricapillus* Lawr.

Orchilus atricapillus LAWR., Ibis, 1875, p. 385 (Costa Rica); HART., 1902, p. 607 (San Javier).

RANGE.—Tropical Zone; Costa Rica to northwestern Ecuador.

Known in Ecuador only from San Javier. We have a specimen from Barbacocas, Col., but none from Ecuador.

(2844) *Hapalocercus meloryphus fulviceps* (Scl.)

Euscarthmus fulviceps SCL., P. Z. S., 1871, p. 497 (Babahoyo, Ec.); TACZ., 1877, p. 325 (Tumbez).

Hapalocercus fulviceps, HART., 1898, p. 486 (Chimbo).

Bucay (Rhoads).

Manta, 3 ♂; La Plata Is., 6 ♂, 1 ♀; Chongoncito, 1 ♂, 2 ?; Guayaquil, 1 ♂; Duran, 1 ♂; Bucay, 1 ♂; Puna Is., 3 ♂, 1 ♀; Jambeli Is., 1 ♂; Rio Jubones, 2 ♂; Santa Rosa, 3 ♂, 3 ♀; La Puente, 1 ♂; Portovelo, 2 ♂, 3 ♀, 1 ?; Punta Santa Ana, 1 ♂, 1 ?; Casanga, 1 ♂; Lunamá, 1 ♀; La Piñas, 1 ♀; Cebollal, 1 ♂; Alamor, 4 ♂; Rio Pullango, 2 ♂, 2 ♀.

RANGE.—Chiefly arid Tropical Zone: the species, northern Argentina to the Caribbean; the race, valley of the Marañon south on the Pacific coast to Lima, north to Manaví, Ec.

A species which has evidently reached the Pacific coast from the Marañon. We have Peruvian specimens from Palambra, Huancabamba, and Huarandosa, in the lower Chinchipe Valley, as well as a large series from the coast as far south as Huaral. Those from the Marañon drainage are slightly grayer than most Ecuadorean birds, but they have the wing-bars and fulvous cheeks of *fulviceps* and show, therefore, no appreciable approach to *meloryphus* of the interior of South America.

(2847) **Myiosympotes acutipennis** (Scl. & Salv.)

Hapalocercus acutipennis SCL. & SALV., P. Z. S., 1873, p. 187 (Bogotá); GOODF., 1901, p. 703 (Quito).

Junction of Chanchan and Chiguancay; Cumbaya (Rhoads).

Huigra, 1 ♀.

RANGE.—Tropical to Temperate Zone from Argentina to Colombia.

This specimen from Huigra and a female from Salento (our only Colombian specimen) are smaller (wing 43.5 to 45 mm.) than Bolivian and Argentine examples.

(2858) **Pogonotriccus pœcilotis** (Scl.)

Leptopogon pœcilotis SCL., P. Z. S., 1862, p. 111 (Bogotá); B. & T., 1885, p. 89 (Machay); GOODF., 1901, p. 704 (lower w. Pichincha).

Sabanilla, 2 ♂, 1 ♀, 1 ?; Baeza, 2 ♂; lower Sumaco, 8 ♂.

RANGE.—Subtropical Zone; northern Peru (Chaupe), eastern (and western ?) Ecuador and all three Colombian ranges.

A series of twenty-three specimens from throughout the range of the species presents no appreciable geographic variation.

(2859) **Pogonotriccus orbitalis** (Cab.)

Capsiempis orbitalis CAB., J. f. O., 1873, p. 68 (Monterico, Peru).

Rio Suno, 4 ♂; below San José, 4 ♂, 3 ♀.

RANGE.—Tropical Zone, eastern Peru, and eastern Ecuador.

Agree in color with a specimen from southeastern Peru but are somewhat larger. Not before recorded from Ecuador.

(2860) **Pogonotriccus ophthalmicus** Tacz.

Pogonotriccus ophthalmicus TACZ., P. Z. S., 1874, p. 135 (Amable-Maria, c. Peru); B. & T., 1885, p. 89 (Mapoto; Machay); GOODF., 1901, p. 703 (w. Pichincha and Corazon, at forest-limit); L. & R., 1922, p. 73 (Niebli).

Mindo, 4 ♂, 2 ♀; Guallea, 2; below Oyacachi, 6 ♂, 3 ♀; Baeza, 3 ♂, 4 ♀; Puente de Rio Quijos, 1 ♂; lower Sumaco, 2 ♂, 2 ♀; Sabanilla, 1 ♂.

RANGE.—Subtropical Zone, from central Peru through both eastern and western Ecuador to Venezuela.

I find no racial differences in forty-five specimens from northern Peru (Chaupe), Ecuador, and Colombia.

(2862) *Pogonotriccus gualaquizæ* *Scl.*

Pogonotriccus gualaquizæ SCL., P. Z. S., 1887, p. 48 (Gualaquiza, Ec.); B. & T. (Scl. MS. without description), 1885, p. 89 (Mapoto).

Zamora, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone; eastern Ecuador.

Our two essentially topotypical specimens have been compared with the type of the species.

In general coloration this species resembles *Oreotriccus plumbeiceps*, but it is smaller, with less conspicuous wing-bars, and has the elliptical nostril of *Pogonotriccus*.

(2863) *Oreotriccus plumbeiceps* (*Lawr.*)

Pogonotriccus plumbeiceps LAW., Ann. Lyc. Nat. Hist. N. Y., IX, 1870, p. 267 (Bogotá).

Tyranniscus plumbeiceps, B. & T., 1885, p. 90 (Machay).

Baeza, 1 ♂.

RANGE.—Subtropical Zone from south central Peru (Idma) through eastern Ecuador to Venezuela.

An apparently uncommon bird in Ecuador, whence it has been but once previously recorded.

(2871) *Serpophaga cinerea* (*Strickl.*)

Euscarthmus cinerea STRICKL., Ann. & Mag. Nat. Hist., XIII, 1844, p. 414 ("Inhabits Chili").

Serpophaga cinerea, SCL., 1858b, p. 458 (Gualaquiza; Cuenca); 1859a, p. 144 (Pallatanga); B. & T., 1883, p. 553 (Chimbo); HART., 1898, p. 486 (Mt. Cayambe); S. & F., 1899b, p. 6 (Sigsig; Gualaquiza; Tumbaco; Rio Peripa); GOODF., 1901, p. 73 (Intag; Mindo; Chillo Valley); MEN., 1911, p. 52 (Tumbaco; San Nicolas).

Bucay; junction of Chanchan and Chiguancay (Rhoads).

Naranjo, 1 ♂, 1 ♀; Bucay, 1 ♂; La Chonta, 1 ♂; Portovelo, 1 ♂, 2 ♀; Salvias, 1 ♀; Guainche, 3 ♂; Zamora, 1 ♂, 2 ♀; upper Sumaco, 1 ♂; Baeza, 2 ♂, 2 ♀; Puente del Rio Quijos, 1 ♂.

RANGE.—Tropical and Subtropical Zones, Bolivia to Venezuela.

Seventy-odd specimens of this species from southeastern Peru to northern Colombia (but not Santa Marta) show considerable variation in the amount of white in the crown and on the wing-bars. Those from the Pacific coast seem to have less (often no) white on the crown than those from east of the Andes, thus suggesting *S. grisea* of Costa Rica. The series as a whole, however, seems to me to present no separable differences.

(2880) *Spizitornis parulus æquatorialis* (Berl. & Tacz.)

Anæretes parulus æquatorialis BERL. & TACZ., P. Z. S., 1884, p. 296 (Cechce, w. Ec.); MEN., 1911, p. 53 (Lloa; Tumbaco, Nono); L. & R., 1922, p. 73 (Quito; Cumbaya; Tumbaco; Lloa; Calacali).

Serpophaga parulus, SCL., 1858c, p. 554 (Titicacun; Matos).

Anæretes agilis, B. & T., 1885, p. 89 (San Rafael); S. & F., 1899b, p. 6 (Chinguil; Frutillas; Lloa; Valle de Chillo); GOODR., 1901, p. 703 (Quito; Tulcan).

Anairetes parulus, RHOADS, 1912, p. 144 (quebradas of Pichincha up to 13,000 ft.).

Riobamba; above Chambo (10,300 ft.); below Chambo (9,000 ft.); Cumbaya (Rhoads).

Pichincha, 2♂, 1♀; Yanacocha, 1♂, 1♀; Taraguacocha, 1♂, 1♀; Bestion, 2♂, 4♀; El Paso, 2♂, 1♀; Loja, 1♂; Tumbaco, 2♂, 1♀; Guápulo, 1♀.

RANGE.—Temperate Zone: the species, from the Straits of Magellan north to southern Colombia; the race, Bolivia (and northern Argentina ?) north through western Ecuador to the central Andes of Colombia.

Four races of this species have been described from the southern part of its range, but from at least Bolivia northward it is represented by apparently only one form (*cf.* Hellmayr, Arch. für. Naturg., 1919, p. 50, and Chapman, Bull. U. S. Nat. Mus., 117, 1921, p. 93). On the coastal region of northern Chile this species gives way to *S. reguloides* and it has evidently reached Ecuador through the Andean Temperate Zone.

The relationships of the species of this genus to one another present an interesting problem, to be solved, however, only by extensive field-work at selected stations and with specimens fully and accurately labeled as to locality. It is a significant fact that although our collection contains 140-odd specimens of this genus, we have as yet taken only the present race and *S. agilis* at the same locality. The latter, however, is so distinct that it is possibly deserving of generic separation. In Peru we found *S. flavirostris cuzcoensis* as far down the Urubamba Valley as Ollantaytambo, and some 3,500 feet farther down the valley we took *S. p. æquatorialis*, here, strangely enough, in the Subtropical Zone. In central Peru, however, *æquatorialis* occurs in the Temperate Zone (Maraynioc; Chipa) and the recent discovery of a race¹ of *flavirostris* in northern Peru indicates that in some localities these two birds will be found together, proving, as their characters (particularly that of the color of the bill) would lead one to believe, that they are not representative forms.

¹ Chapm., Amer. Mus. Novit., No. 118, 1924, p. 8.

(2885) *Spizitornis agilis* (Scl.)

Euscarthmus agilis SCL., P. Z. S., 1856, p. 28, pl. 118 (Bogotá).

Anæretes agilis, GOODF., 1901, p. 704 (e. Pichincha; Pedregal; Papallacta); L. & R., 1922, p. 73 (below Nono).

Verdecocha, 2 ♂; Oyacachi, 2 ♂, 1 ♀; upper Sumaco, 1 ♂.

RANGE.—Humid Temperate Zone from northern Ecuador to the Bogotá region, Colombia.

A distinct species with no near relatives. Our Bogotá specimens are not in good condition, but they appear not to differ from Ecuadorean ones.

(2888a) *Mionectes striaticollis viridiceps* Chapm.

Mionectes striaticollis viridiceps CHAPM., Am. Mus. Novit., No. 118, 1924, p. 9 (Zaruma, Ec.).

Mionectes striaticollis, SCL., 1859a, p. 144 (Pallatanga); 1860c, p. 93 (Nanegal); B. & T., 1884, p. 296 (Chaguarpata; Surupata).

Mionectes striaticollis hederaceus, L. & R., 1922, p. 73 (Gualea).

Junction Chanchan and Chiguancay; Chunchi (Rhoads).

Gualea, 1 ♀; Rios Coco and Chimbo, 1 ♀; El Chiral, 2 ♀; Zaruma, 2 ♂, 3 ♀, 1 ?; Salvias, 1 ♀; Punta Santa Ana, 2 ♀; San Bartolo, 2 ♂; Las Piñas, 1 ♂, 1 ♀; Celica, 1 ♂; Alamor, 2 ♀.

Subspecific Characters.—Most nearly related to *Mionectes striaticollis columbianus* Chapm. of the Subtropical Zone of Colombia and eastern Ecuador, but head and throat wholly without, or with but a slight indication of plumbeous, the former usually green, only a shade darker than the back, the latter, usually green of about the same shade as the back, with yellowish white or whitish shaft-streaks.

RANGE.—Subtropical Zone: the species, Bolivia to Colombia; the race, western Ecuador (and northwestern Peru ?).

The fact that we secured adult males of both *viridiceps* and *hederaceus* at Las Piñas, in southwestern Ecuador, shows that the ranges of the two species closely approach each other. This locality, however, is at the junction of the Tropical and Subtropical Zones and it is quite probable that the specimen of *viridiceps* was taken in the latter, that of *hederaceus* in the former.

(2888b) *Mionectes striaticollis columbianus* Chapm.

Mionectes striaticollis columbianus CHAPM., Proc. Biol. Soc. Wash., XXXII, 1919, p. 264 (Santa Elena, Col.).

Mionectes striaticollis, B. & T., 1885, p. 90 (Mapoto; Machay; Baños); S. & F., 1899b, p. 6 (Valle de Zamora; Gualaquiza).

Sabanilla, 1 ♀; upper Sumaco, 2 ♂, 1 ♀; lower Sumaco, 3 ♂; Baeza, 1 ♂; below Oyacachi, 1 ♀.

RANGE.—Subtropical Zone; the race, eastern Ecuador and all Colombia.

These specimens agree with a Colombian series and differ from a Peruvian one in having less gray on the throat, the breast less distinctly streaked, the crown greener and not so sharply defined from the back.

(2890) *Mionectes olivaceus hederaceus* Bangs

Mionectes olivaceus hederaceus BANGS, Proc. Biol. Soc. Wash., XXIII, 1910, p. 73 (Pavas, 4,400 ft., w. Col.).

Mionectes olivaceus, HART., 1898, p. 487 (Chimbo); S. & F., 1899b, p. 6 (Niebli; ? Rio Peripa); GOODF., 1901, p. 704 (San Nicolas; Gualea; Canzacota); HART., 1902, p. 607 (? Lita; ? Paramba); MEN., 1911, p. 53 (? Santo Domingo).

Bucay (Rhoads).

Mindo, 2 ♀; Naranjo, 1 ♂; Las Piñas, 1 ♂.

RANGE.—Tropical Zone: the species, southeastern Peru to Venezuela and Costa Rica; the race, eastern Panama, western Colombia, and western Ecuador.

Ecuadorean specimens agree with a topotypical series. Represented in the Subtropical Zone by *M. striaticollis viridiceps* from which both sexes may be distinguished by their generally paler underparts and less sharply defined streaks. Furthermore, Dr. Hellmayr calls my attention to the fact that in adult males the second primary (from without) of *striaticollis* is very narrow and acuminate, while in *olivaceus* the tip is more rounded and on the inner web there is a long, deep subapical incision.

(2890a) *Mionectes olivaceus fasciaticollis* Chapm.

Mionectes olivaceus fasciaticollis CHAPM., Am. Mus. Novit., No. 67, 1923, p. 9 (Tulumayo, Peru).

Zamora, 1 ♂, 1 ♀; Rio Suno, 1 ♂, 2 ♀; below San José, 1 ♂, 4 ♀.

Subspecific Characters.—Resembling *Mionectes olivaceus galbinus* in the barring of the throat, but upperparts much darker, the breast and sides with more olive-green, less yellow; differing from *M. o. pallidus* in its more barred throat, much richer yellow underparts, greener and more uniformly colored upperparts, the crown not appreciably darker than the back.

RANGE.—Tropical Zone; eastern Peru and eastern Ecuador.

A female from La Pampa, near Santo Domingo in southeastern Peru, is very near this race but is slightly paler below and the throat is not so definitely barred. It thus approaches our two specimens of

M. o. pallidus but is deeper yellow below and the crown is not darker than the back, as it is in *pallidus*.

An apparently adult female from the Rio Tavara, Peru (lat. 13° 25' S.; long. 70° 21' W.) is above the average in size (wing 70 mm.) and in its generally unstreaked underparts more nearly resembles *M. o. olivaceus* of Panama and Costa Rica than any other known member of the genus.

Altitudinally, *fasciaticollis* is represented in the Subtropical Zone by *Mionectes striaticollis poliocephalus* in Peru and by *M. s. columbianus* in eastern Ecuador. We have eight specimens of the former from Chilpes (7,350 ft.) in the Vitoc Valley above Tulumayo, and nine of the latter as above recorded under that race.

(2892) **Pipromorpha oleaginea chloronota** (d'Orb. & Lafr.)

Muscicapa oleaginea chloronota D'ORB. & LAFR., Syn. Av., II, 1837, p. 51 (Yuracares, Bol.).

Mionectes oleagineus, SCL., 1858a, p. 71 (Napo).

Rio Suno, 4♂, 4♀; below San José, 3♂.

RANGE.—Tropical Zone: the species, Bolivia to Guiana and Panama; the race, east of the Andes, except Bahia region.

I follow Todd (Proc. Biol. Soc. Wash., XXXIV, 1921, p. 183) in my identification of these specimens.

(2892a) **Pipromorpha oleaginea pacifica** Todd

Pipromorpha oleaginea pacifica TODD, Proc. Biol. Soc. Wash., XXXIV, 1921, p. 187 (Bucay).

Mionectes oleagineus, SCL., 1860d, p. 283 (Babahoyo); S. & F., 1899b, p. 7 (Vinces); HART., 1902, p. 607 (Carondelet).

Mionectes oleaginus, B. & T., 1883, p. 553 (Chimbo).

Bucay (Rhoads).

Esmeraldas, 1♀; Chone, 1♀; Rio de Oro, 1♀; Chongon Hills, 1♂; Santa Rosa, 2♂, 1♀; Alamor, 4♂, 2♀; Las Piñas, 1♂, 1♀; Cebollal, 5♂, 2♀.

RANGE.—Tropical Zone: the race, western Ecuador.

Differing from *P. o. parca* of Panama and Colombia in the somewhat paler, more buffy color of the abdomen, and more olivaceous throat and breast. Three upper Magdalena examples are like Ecuadorean ones in the color of the abdomen, but agree with *parca* in the color of the breast.

(2895) *Leptopogon superciliaris superciliaris* Tsch.

Leptopogon superciliaris TSCH., Arch. für Naturg., I, 1844, p. 275 (Peru); SCL., 1858a, p. 71 (Napo); B. & T., 1885, p. 89 (Machay; Mapoto).

Zamora, 2 ♂, 1 ♀; Rio Suno, 2 ♂; below San José, 2 ♀.

RANGE.—Tropical to Subtropical Zones: the species, Bolivia to Trinidad and Costa Rica; the race, central Peru and eastern Ecuador (probably southeastern Colombia).

With essentially topotypical series of all the described races of this species, I can find grounds for the recognition of only three subspecies, as follows:

1. *L. s. albidiventer* Hellm.—A strongly marked race with pale underparts in which (so far as our eleven Bolivian and seven Peruvian specimens show) the wing-bars are yellowish white. This bird ranges from Bolivia north at least to the Urubamba Valley in Peru, and its characters were commented on by various authors before it was finally described.

2. *L. s. superciliaris* Tsch.—Characterized by its strongly yellow (citron-yellow) underparts. There is, however, much variation in the intensity of this color and several examples from central Peru cannot be distinguished from Colombian birds. The color of the wing-bars is yellow-ochre or antimony-yellow in fourteen out of eighteen Peruvian (eleven from central, seven from northern Peru) specimens; in the remaining four it is greenish white or pale buffy, and this variation is shown by specimens of the same sex from the same locality. Eastern Ecuadorean birds are typical of this race and all our five specimens have the wing-bars ochraceous.

3. *L. s. poliocephalus* Cab. & Heine.—In this not very strongly marked race both the underparts and wing-bars average paler than in *superciliaris*. There is, however, much variation in color, and central Peruvian birds can be matched by Colombian, Venezuelan and western Ecuadorean examples. As a whole, however, the race is a fair one, but I can see no ground for the recognition of Venezuelan and western Ecuadorean¹ forms of it.

Accepting four specimens from Buena Vista and Villavicencio in the east Bogotá region (we have no record of the species from the western slope of the eastern Andes) as typical of *poliocephalus*. I can find no constant differences between them and fourteen specimens from northern Venezuela, five from the interior of Colombia, seven from eastern Panama, and nine from western Ecuador.

¹ Since writing the above, I find that Bangs and Noble, who, with Hellmayr, agree with me in regard to the invalidity of the western Ecuadorean form, refer Costa Rican specimens also to *poliocephalus* (Auk, 1918, p. 454).

(2896) **Leptopogon superciliaris poliocephalus** Cab. & Heine

Leptopogon poliocephalus CAB. & HEINE, Mus. Heine, II, 1859, p. 55 (Bogotá).

Leptopogon superciliaris transandinus BERL. & TACZ., P. Z. S., 1883, p. 553 (Chimbo, Ec.); MEN., 1911, p. 54 (Gualea; Santo Domingo); HELLM., P. Z. S., 1911, p. 1132 (crit.).

Leptopogon superciliaris, SCL., 1860a, p. 69 (Pallatanga); HART., 1902, p. 607 (Lita; Paramba).

Leptopogon transandinus, S. & F., 1899b, p. 7 (Rio Peripa).

Bucay; junction Chanchan and Chiguancay (Rhoads).

Rio de Oro, 3♂, 1♀, 1?; Mindo, 1♂; Naranjo, 1♀; La Chonta, 1♀; Las Piñas, 1♀.

RANGE.—Chiefly Tropical Zone, Colombia, Venezuela, Panama to Costa Rica and western Ecuador.

Remarks on this species are presented above.

(2901) **Leptopogon rufipectus** (Lafr.)

Tyrannula rufipectus LAFR., Rev. Zoöl., 1846, p. 207 (Colombia).

Leptopogon erythrops SCL., P. Z. S., 1862, p. 111 (Bogotá); Cat. Bds. B. M., XIV, 1888, p. 119, pl. x; B. & T., 1885, p. 89 (Machay; Mapoto); S. & F., 1899b, p. 7 (San José).

Baeza, 2♂, 1♀; below Oyacachi, 1♂; lower Sumaco, 3♂, 1♀.

RANGE.—Subtropical Zone of the central and eastern Andes, Colombia, and eastern Andes, Ecuador.

Ecuadorean specimens agree with topotypical ones.

The Peruvian representative is probably the specifically distinct *L. inca* Bangs and Penard (cf. Proc. Biol. Soc. Wash., 1922, p. 225).

(2904) **Capsiempis flaveola semiflava** (Lawr.)

Elainea semiflava LAWR., Ann. Lyc. Nat. Hist., N. Y., 1867, VIII, p. 178 (David, Panama).

Capsiempis flaveola magnirostris HART., Nov. Zoöl., 1898, p. 487 (Chimbo, Ec.).

Capsiempis flaveola, B. & T., 1883, p. 554 (Chimbo); 1885, p. 90 (Yaguachi); S. & F., 1899b, p. 7 (Balzar).

Duran, 1♀; Bucay, 1♂; Chimbo, 1♂, 1?; Rio Jubones, 2♂; Santa Rosa, 1?; Rio Suno, 2♂; below San José, 1♂.

RANGE.—Tropical Zone: the species, Paraguay to Nicaragua; the race, northern South America to Nicaragua.

Typical *flaveola*, as represented by eleven specimens from Bahia to São Paulo, is a small-billed bird with the forehead, lores, and superciliary as yellow as the breast. In *semiflava* the bill is larger, the fore-

head, lores, and superciliary are usually whitish. Of this well-marked northern form we have, in addition to the specimens listed above from eastern and western Ecuador, others from the following localities: Venezuela: Suapure, 1; Bolivar, 1; Alta Gracia, 1; Cumacoa, 4. Colombia: Bogotá Region, 2; Chicoral, 2. Panama: Canal Zone, 1; Veraguas, 1; Chiriqui, 3. Costa Rica: Guacima, 1; Punta Arenas, 4. Nicaragua: Los Sabalos, 5; San Francisco, 2.

The chin in the four Colombian specimens averages paler, and the forehead and lores whiter, than in the remainder of the series, but two of them at least may be matched by Ecuadorean and Central American birds and the other two are not in satisfactory plumage. Possibly these specimens should be referred to *leucophrys* Berl., described from Bogotá. I have, indeed, already recorded the Chicoral birds under that name ('Distribution of Bird-Life in Colombia,' p. 450). Mr. Todd records four specimens from Fundacion, Santa Marta, as *leucophrys*, but unless they exhibit more strongly than ours the characters attributed to that race, its standing is questionable. It is significant that in describing *leucophrys* Berlepsch stated that he had a Bogotá skin of true *flaveola magnirostris* (= *semi-flava*) in his collection. Whether or not *leucophrys* is valid, it seems clear that our remaining birds from northern South America should be known by Lawrence's name *semi-flava*.

(2910) **Phyllomyias griseiceps griseiceps** (Scl.)

Tyranniscus griseiceps SCL., P. Z. S., 1870, p. 841 (Babahoyo, Ec.).

Phyllomyias griseiceps, B. & T., 1883, p. 554 (Chimbo); S. & F., 1899b, p. 7 (Valle de Zamora).

Esmeraldas, 2 ♀; Cebollal, 2 ♂; ? Zamora, 1 ♀.

RANGE.—Chiefly Tropical Zone: the species, eastern Peru and western Ecuador to Colombia and Guiana; the race, the same area minus the Cauca Valley, Col.

Western Ecuadorean birds agree with others from Perené, Peru, the Bogotá and Santa Marta regions; but the Cauca Valley is inhabited by a quite distinct form of which our specimens are from localities in the Subtropical Zone. A Zamora female with an imperfect bill has the wing more rounded than in our remaining specimens, but agrees with them in color.

(2916) **Acrochordopus zeledoni** (Lawr.)

Pogonotriccus zeledoni LAWR., Ann. Lyc. Nat. Hist. N. Y., IX, 1868, p. 144 (Dota, Costa Rica).

Zamora, 1 ♀.

RANGE.—Subtropical Zone, eastern Ecuador and eastern Colombia; western Panama and Costa Rica.

After making due allowance for the greater age, as a skin, of Sclater's type of *Tyranniscus leucogonys*, this Zamora specimen agrees fairly well with it. It resembles in color a specimen from Buena Vista above Villavicencio, Col., one from Chiriqui, and one from Costa Rica, but is slightly smaller.

(2919) *Phæomyias murina tumbezana* (Tacz.)

Phyllomyias tumbezana Tacz., P. Z. S., 1877, pp. 325, 752 (Tumbez, Peru).

Myiopatris tumbezana, B. & T., 1883, p. 354 (Guayaquil).

Bahia de Carques, 1 ♀; Santa Elena, 2 ♂; Chongoncito, 2 ♀; Alamor, 2 ♂.

RANGE.—Tropical Zone: the species, Paraguay to the Caribbean; the race, Marañon Valley and coasts of northwestern Peru and southwestern Ecuador.

A specimen taken at Milagros, between Tumbez and Alamor, in July, and two from Alamor in August are in fresh plumage and have the ends of the wing-coverts and outer margins of the inner wing-quills ochraceous-buff, whereas western Ecuadorean birds taken in December and February have the wing-coverts edged with brownish gray. The February bird and one of the December specimens have only a trace of yellow on the abdomen, but in the second December bird the abdomen is as yellow as in the Milagros specimen. All have the under wing-coverts pale yellow, but in the Ecuadorean birds the mandible is black; in the Peruvian one it is basally horn-color.

The specimens from the Chinchipe Valley, near the Marañon, are slightly more yellow below than the coast birds, and while thus approaching *murina* are to be referred, in my opinion, to *tumbezana*.

Taczanowski (Orn. Per., II, p. 252) records *tumbezana* from Pacasmayo but a series from Trujillo and Viru contains only *m. inflava* Chapm.

(2921) *Ornithion inerme* Hartl.

Ornithion inerme HARTL., Journ. für Orn., 1853, p. 35 (Bahia); SCL., Cat. Bds. B. M., XIV, 1888, p. 125 (Sarayacu—Buckley).

Rio Suno, 1 ♂; below San José, 1 ♀.

RANGE.—Bahia to eastern Ecuador and Guiana.

Somewhat greener than a Para specimen.

(2923a) *Camptostoma pusillum olivaceum* (Berl.)

Ornithion pussillum olivaceum Berl., J. f. O., XXXVII, 1889, p. 301 (Iquitos, Peru).

Ornithium pusillum, SCL., Cat. Bds. B. M., XIV, 1888, p. 126 (Zamora; Napo).

RANGE.—The species, Brazil to Costa Rica.

I have seen no specimens of this species from eastern Ecuador.

(2924) *Camptostoma obsoletum sclateri* (Berl. & Tacz.)

Ornithion sclateri BERL. & TACZ., 1883, p. 554 (Guayaquil; Yaguachi; Chimbo); 1884, p. 296 (Cayandeled); 1885, p. 90 (Yaguachi); S. & F., 1899b, p. 7 (Savana de Guayaquil; Vines; Balzar).

Ornithion imberbe sclateri, HART., 1898, p. 487 (Chimbo; Paramba).

Eupsilostoma pusillum, SCL., 1860a, p. 68 (Pallatanga); 1860d, p. 283 (Babaho); LAWR., 1869, p. 236 (Puna Is.); TACZ., 1877, p. 325 (Tumbez).

Bucay; Huigra; junction Chanchan and Chiguancay; Chunchi; Cumbaya (Rhoads).

Esmeraldas, 2 ♀; Chone, 1 ♂, 5 ♀; Manaví, 1 ♂, 1 ♀; Guayaquil, 2 ♀; Chongoncito, 1 ♂, 4 ♀; Duran, 5 ♂; Bucay, 1 ♀; Pallatanga, 1 ♂; Puna Is., 1 ♂, 1 ♀, 3 ?; Rio Jubones, 2 ♂; Santa Rosa, 5 ♂, 3 ♀; Portovelo, 4 ♂; Cebollal, 3 ♂; Alamor, 1 ♂, 1 ♀; Lunamá, 1 ♂; Casanga, 1 ♂; Rio Pindo, 1 ♂; Guainche, 1 ♂; Tumbaco, 2 ♂.

RANGE.—The species, Tropical Zone chiefly south of the Amazon; the race, lower arid Marañon, western Ecuador, and western Peru.

This is obviously a race of *obsoletum* which, as our Peruvian specimens show, has reached the Pacific coast over the Marañon route. Specimens from Ecuador can be matched by others from Matto Grosso, but, as a rule, *sclateri* has the upper tail-coverts paler. A large series from the Peruvian coast as far south as Lima averages paler below than Ecuadorean birds, and six from the Rio Chinchipe near its junction with the Marañon have the bill larger than the average.

Two males from the Tumbaco Valley show the increase in size which usually accompanies increased altitude. They measure, wing 54 to 55 mm.; tail 42 mm.

(2926a) *Microtriccus brunneicapillus brunneicapillus* (Lawr.)

Tyrannulus brunneicapillus LAWR., Ibis, 1862, p. 12 (Panama R. R. line).

Ornithion brunneicapillus, HART., 1898, p. 487 (Paramba).

Rio de Oro, 1 ♀ ?; Naranjo, 1 ♀.

RANGE.—Tropical Zone, western Ecuador to Venezuela and Costa Rica

Our two Ecuadorean birds have the crown blacker than the types of *brunneicapillus*, and although Lawrence's name indicates that the brownish cap of the Panama bird is not due to fading, I should prefer to see more material before separating an Ecuadorean form.

(2927) ***Tyrannulus elatus elatus* (Lath.)**

Sylvia elata LATH., Ind. Orn., II, 1790, p. 549 ("Cayanæ").

Tyrannulus elatus, S. & F., 1899b, p. 8 (Balzar); HART., 1902, p. 607 (Pambilar; San Javier).

RANGE.—Tropical Zone; the species, Amazonia to Guiana and Panama.

We have no Ecuadorean specimens of this species.

(2928) ***Tyranniscus nigricapillus nigricapillus* (Laf.)**

Tyrannulus nigricapillus LAFR., Rev. Zoöl., 1845, p. 341 (Bogotá); SCL., 1860c, p. 93 (above Puellaro).

Tyranniscus nigricapillus, GOODF., 1901, p. 704, part, (w. Pichincha, high trees). Upper Sumaco, 2 ♀.

RANGE.—Humid Temperate and Subtropical Zones: the species, northern Ecuador to western Venezuela; the race, Ecuador and Colombia except the Santa Marta region.

Not separable from Colombian specimens.

(2929) ***Tyranniscus uropygialis* (Lawr.)**

Mecocerculus uropygialis LAWR., Ann. Lyc. Nat. Hist. N. Y., IX, 1870, p. 266 (Ecuador); MEN., 1911, p. 49 (Chorillos).

Tyranniscus uropygialis, B. & T., 1884, p. 296 (Cechce; Cerro Margarita).

Tyranniscus nigricapillus GOODF., 1901, p. 704, part (Corazon, cf. Hellm. Arch. für Naturg. 1919, p. 53).

Hacienda Garzon (Rhoads).

Ecuador, 1 (type); Pichincha, 1 ♂; Guachanamá, 1 ♂; Celica, 1 ♂.

RANGE.—Humid Temperate Zone: southern Peru to Colombia.

While this species has the bill of *Tyranniscus*, its color characters are those of *Mecocerculus setophagoides*.

(2930) ***Tyranniscus cinereiceps* (Scl.)**

Tyrannulus cinereiceps SCL., P. Z. S., 1860, p. 69 (Pallatanga, Ec.); 1860d, p. 283 (Babahoyo); Cat. Bds. B. M., XIV, 1888, p. 131, pl. XI, fig. 1.

Tyranniscus cinereiceps, B. & T., 1883, p. 555 (Chimbo); 1885, p. 90 (Machay; Mapoto); GOODF., 1901, p. 704 (Intag); L. & R., 1922, p. 74 (Niebli).

Upper Sumaco, 1 ♀.

RANGE.—Subtropical Zone, southern Peru to Colombia.

We have also Peruvian and Colombian specimens of this species.

(2937) ***Tyranniscus chrysops chrysops* (Scl.)**

Tyrannulus chrysops SCL., P. Z. S., 1858, p. 458 (Gualaquiza, Ec.); 1859a, p. 144 (Pallatanga); 1860c, p. 93 (Nanegal); S. & F., 1899b, p. 8 (Valle de Zamora; Rio Peripa).

Tyranniscus chrysops, B. & T., 1884, p. 296 (Cayandeled); 1885, p. 90 (Mapoto); GOODF., 1901, p. 704 (Gualea; Intag; Nono); MEN., 1911, p. 54 (Gualea); L. & R., 1922, p. 74 (roads to Nanegal and Gualea, 6,000 ft.).

Tyrannulus flavidifrons SCL., 1860a, p. 69 (Pallatanga).

Pallatanga, 1 ♂; El Chiral, 2 ♀; Punta Santa Ana, 1 ♂, 2 ♀; Guachanamá, 1 ♂; Las Piñas, 1 ♂, 2 ♀; Celica, 1 ♂; Pullango, 1 ♂; Cebollal, 7 ♂; Alamor, 11 ♂, 10 ♀; Zamora, 5 ♂, 2 ♀; Baeza, 1 ♂, 1 ♀; below Oyacachi, 4 ♀.

RANGE.—Chiefly Subtropical Zone: the species, Peru to Colombia and Guiana; the race, the same except the Tropical Zone of western Ecuador and the Santa Marta region.

In addition to the specimens above listed, I have forty-odd from Colombia, one from the Paria Peninsula of Venezuela, and one said to have come from British Guiana. Specimens from the Tropical Zone of western Ecuador present well-marked racial characters, and I have described them under the name *T. chrysops albigularis*. While the remaining examples in our large series exhibit a certain amount of geographic variation, it is not in my opinion sufficiently pronounced to serve as the basis for subspecific separation. Compared with Zamora birds, which are essentially topotypical, those from the Subtropical Zone of western Ecuador are darker above and less yellow below, and the rectrices lack the whitish tip usually more or less evident in Zamora and other east Ecuadorean birds. Colombian birds, including a series from both the eastern and western Bogotá region, agree on the whole with eastern Ecuadorean birds, but the range of individual variation is sufficient to render many of them indistinguishable from western Ecuadorean specimens. I, therefore, recognize but one form from the Subtropical Zone of Ecuador and Colombia, excluding Santa Marta.

(2937a) ***Tyranniscus chrysops albigularis* Chapm.**

Tyranniscus chrysops albigularis CHAPM., Amer. Mus. Novit., No. 138, 1924, p. 1 (Esmeraldas, Ec.).

Tyranniscus chrysops, B. & T., 1883, p. 555 (Chimbo); HART., 1898, p. 487 (Paramba; Chimbo); MEN., 1911, p. 54 (Santo Domingo).

Tyranniscus parvus, GOODF., 1901, p. 705 (Santo Domingo; Guanacillo).

Huigra (Rhoads).

Esmeraldas, 1 ♂; Rio de Oro, 1 ♂; below Mindo, 4 ♂, 2 ♀; Naranjo, 1 ♂, 1 ?.

Subspecific Characters.—Similar to *Tyranniscus chrysops chrysops* (Scl.) of the Subtropical Zone of Ecuador and Colombia, and eastward, but much less yellow below, the breast gray, the throat whitish without or with but faint trace of yellow; yellow of the frontal and particularly orbital region paler and less extensive; that of the wing-coverts slightly richer in tone.

RANGE.—Tropical Zone, western Ecuador.

The comparatively low temperature prevailing in the coastal region of Ecuador induces numbers of Subtropical Zone species to descend to exceptionally low altitudes, in this instance to the Tropical Zone. The resulting change in environment is doubtless responsible for the development of the characters which distinguish this form. The references quoted are allotted solely on the basis of locality.

(2940) *Elænia flavogaster semipagana* Scl.

Elainea semipagana SCL., P. Z. S., 1861, p. 406 (Babahoyo, Ec.); B. & T., 1883, p. 555 (Guayaquil; Yaguachi); 1885, p. 90 (Yaguachi); S. & F., 1899b, p. 8 (La Concepcion; Balzar); HART., 1902, p. 607 (Paramba).

Bucay (Rhoads).

Esmeraldas, 2 ♂, 3 ♀; Manaví, 2 ♂, 3 ♀, 1 ?; Duran, 1 ♂; Puna Is., 1 ♀; Santa Rosa, 2 ♂; Portovelo, 4 ♂, 3 ♀; Rio Pindo, 2 ♂.

RANGE.—The species, greater part of the Tropical Zone; the race, western Ecuador and northern Peru.

(2942) *Elænia gigas* Scl.

Elainea gigas SCL., P. Z. S., 1870, p. 831 (Rio Napo, Ec.).

Elainea pagana, GOODF., 1901, p. 705 (Archidona) (= *E. gigas*, *fide* Hellm. in litt.)

Zamora, 3 ♂.

RANGE.—Southeastern Peru to eastern Colombia.

(2950) *Elænia griseigularis* Scl.

Elainia griseigularis SCL., P. Z. S., 1858, p. 554 (Riobamba, Ec.).

Elainea griseigularis, B. & T., 1884, p. 296 (Cechce; Bugnac); 1885, p. 90 (Machopoto; Palichtagua; San Rafael); S. & F., 1899b, p. 8 (Pun; Lloa).

Elænia griseigularis, MEN., 1911, p. 55 (Lloa).

Elænia albiceps, SCL., 1858, p. 71 (Napo).

Elainea albiceps, GOODF., 1901, p. 705 (Pichincha; Papallacta).

Huigra; Chambo; Hacienda Garzon (Rhoads).

Yanacocha, 1 ♀; Taraguacocha, 1 ♂, 1 ♀; San Bartolo, 2 ♂, 2 ♀; El Paso, 2 ♂, 4 ♀; above Baeza, 4 ♂; below Oyacachi, 1 ♂, 2 ♀.

RANGE.—Humid Temperate Zone, Ecuador.

(2951) *Elænia brachyptera* Berl.

Elænia brachyptera BERL., Proc. IV, Intern. Orn. Congr., London, 1905, p. 407 (St. Pablo, Col.).

Elainea albiceps, HART., 1898, p. 487 (Ibarra; Cayambe; Paramba).

? Mindo, 2 ♂.

RANGE.—Northwestern Ecuador and western Colombia.

I refer two Mindo specimens to this form, of which I have seen no authentic examples. Its relationships, as well as its range, appear to be not clearly understood, but it may be a Subtropical Zone representative of *E. griseigularis*. These birds have the wing 70 and 73 mm. respectively and are thus larger than the size (wing 56.5 to 69.5 mm.) ascribed to the race by its describer. West Colombian specimens formerly referred by me to *brachyptera* ('Distribution Bird-Life in Colombia', p. 456) are evidently *E. pallatangæ*.

(2953) *Elænia pallatangæ* Scl.

Elainea pallatangæ SCL., P. Z. S., 1861, p. 407, pl. xli (Pallatanga); S. & F., 1899b, p. 9 (Pun; Niebli).

Huigra; Chunchi; Pagma Forest (Rhoáds).

Elænea pallatangæ, L. & R., 1922, p. 74 (below Nono; Chinguil; road to Nanegal).

Pallatanga, 1 ♂ im.; Sabanilla, 3 ♂; Zamora, 1 ♂.

RANGE.—Subtropical Zone, southern Peru to eastern and western Ecuador and western Colombia.

(2960) *Elænia gaimardi* subsp.

Zamora, 1 ♀.

RANGE.—Tropical Zone: the species, Bolivia to Guiana and Colombia.

This species has not before been recorded from Ecuador, and I am unable to determine its status there from a single specimen which appears not to agree with any of the described forms.

(2968) *Elænia viridicata implacens* Scl.

Elainea implacens SCL., P. Z. S., 1861, p. 408 (Esmeraldas, Ec.).

Elainea placens, GOODF., 1901, p. 705 (Intag.).

Manaví, 1 ?; Daule, 1 ♀; Chimbo, 1 ♀; Puna Is., 2 ♂; Punta Santa Ana, 1 ♂; Salvias, 1 ♂.

RANGE.—Tropical Zone: the species, Paraguay to southern Mexico; the race, western Ecuador to western Colombia.

Very near *E. v. accola* of Costa Rica to western Colombia, but Costa Rican birds are slightly larger, have more gray on the breast, and the sides of the crown in the male are possibly not so dark as in *implacens*. Western Colombian birds are intermediate.

(2969) *Elænia subplacens* *Scl.*

Elainea subplacens *SCL.*, P. Z. S., 1861, p. 407 (Pallatanga, Ec.); B. & T., 1883, p. 555 (Guayaquil; Chimbo); *HART.*, 1898, p. 487 (Chimbo).

Elainea placens, *Tacz.*, 1877, p. 325 (Tumbez).

Bucay (Rhoads).

Chongoncito, 1 ♂, 4 ♀; Zaruma, 1 ♂, 1 ♀; Casanga, 2 ♂; Rio Pindo, 2 ♂; Alamor, 3 ♂, 1 ♀; Guainche, 1 ♂, 1 ♀; Lunamá, 1 ♂; Rio Pullango, 2 ♂. Peru: Paletillas, 4 ♂, 2 ♀; Milagros, 1 ♂; Palambla, 1 ♂, 5 ♀.

RANGE.—Arid Tropical upward to Subtropical Zone, western Ecuador and northwestern Peru.

Apparently most closely related to *viridicata implacens*, nevertheless we have actually taken them together and they have much the same range. The present species is larger (♂, wing 71 to 74 mm.; ♀, 68 to 70 mm.; as compared with ♂, wing 66 to 71 mm.; ♀, 59 to 61 mm. in *implacens*), the green of the back is darker, less uniform, somewhat mixed with brownish; the gray of the breast is slightly deeper, more extensive and more streaked, and the grayish superciliary is more pronounced. While these differences are usually diagnostic, there are two specimens in our series from Chongoncito which seem to be as near to one species as to the other. The case offers an interesting problem for the field student.

(2970) *Elænia leucospodia leucospodia* *Tacz.*

Elainea leucospodia *TACZ.*, P. Z. S., 1877, p. 325 (Tumbez).

Tumbez, 1 ♂, 1 ♀.

RANGE.—Arid Tropical Zone: the species, coastal region; central Peru to central Ecuador; the race, southwestern Ecuador and southward.

(2971) *Elænia leucospodia cinereifrons* *Salvad. & Festa*

Elainea cinereifrons *SALVAD. & FESTA*, Boll. Mus. Tor., XV, 1899, p. 8 (Puntilla de Santa Elena).

La Plata Is., 1 ♂; Santa Elena, 1 ♂; Puna Is., 1 ♀.

RANGE.—Coastal region of central Ecuador.

This is, obviously, a race of *leucospodia* Tacz., of which we have ten specimens from Tumbes to Viru, Prov. La Libertad, Peru. In fresh plumage it differs from *leucospodia* in being grayer both above and below, with almost no yellow on the flanks. In worn plumage the two races are not distinguishable. The form of extreme southwestern Ecuador is doubtless true *leucospodia*.

(2972) *Elænia cinerea* Pelz.

Elænia cinerea PELZ., Orn. Bras., 1869, pp. 108, 180, (Marabitañas, Rio Negro).
Serpophaga albogrisea, S. & F., 1880, p. 156 (Sarayacu).

RANGE.—Tropical Zone: the species, southern Brazil to Venezuela; the race, chiefly north of the Amazon.

We have no Ecuadorean examples.

(2973) *Elænia parambæ* (Hellm.)

Serpophaga parambæ HELLM., Bull. B. O. C., XIV, 1904, p. 54 (Paramba).

RANGE.—Northwestern Ecuador and western Colombia (Brabourne and Chubb).

I have not seen this species.

(2977) *Legatus leucophaius* (Vieill.)

Platyrynchos leucophaius VIEILL., Nouv. Dict. d'Hist. Nat., 1818, p. 11 (South America).

Legatus albicollis, SCL., 1860a, p. 68 (Pallatanga); B. & T., 1883, p. 556 (Chimbo); S. & F., 1899b, p. 9 (Valle del Zamora); GOODF., 1901, p. 705 (Santo Domingo); HART., 1902, p. 607 (Paramba).

Mindo, 1 ♀, 1 ?; Zamora, 3 ♂, 1 ♀.

RANGE.—Tropical Zone, Paraguay to Mexico.

One of the males from Zamora measures, wing 92 mm., tail 64 mm., culmen 17 mm., and thus about equals the maximum size of the species as given by Ridgway from Mexico. Two other males from the same locality and two from Perené, eastern Peru, measure, wing 78 to 84 mm., tail 55 to 60 mm., culmen 13 to 14 mm.

(2981) *Myiozetetes cayanensis hellmayri* Hart. & Goods.

Myiozetetes cayanensis hellmayri HART. & GOODS., Nov. Zoöl., XXIV, 1917, p. 412 (Cachabe, Ec.).

? *Elania cayennensis*, SCL., 1854, p. 113 (Quijos)

? *Elænia cayennensis*, SCL., 1858b, p. 458 (Gualaquiza; Zamora)

Myiozetetes guianensis, SCL., 1860d, p. 283 (Babahoyo).

Myiozetetes cayennensis, B. & T., 1883, p. 556 (Chimbo); S. & F., 1899b, p. 9 (Vinces; Rio Peripa); GOODF., 1901, p. 705 (Santo Domingo); MEN., 1911, p. 55 (Santo Domingo).

Myiozetetes cayanensis, HART., 1898, p. 488 (Cachaví).

Myiozetetes similis, TACZ., 1877, p. 326 (Tumbez).

Bucay (Rhoads).

Rio de Oro, 1 ♂; Duran, 1 ♀; Cebollal, 1 ♀.

RANGE.—Tropical Zone: the species, southwestern Brazil to Panama; the race, western Ecuador and Colombia west of the East Andes.

Lacking satisfactory material from Cayenne, I follow Mr. Todd's treatment of this form (Ann. Carn. Mus., XIV, 1922, p. 360). In default of eastern Ecuador specimens I cannot allot a definite race to that region.

(2983a) ***Myiozetetes granadensis* Lawr.**

Myiozetetes granadensis LAWR., Ibis, 1862, p. 11 (Panama R. R.); HART., 1898, p. 487 (Cachaví); GOODF., 1901, p. 705 (mouth of Coca River).

Below San José, 2 ♂, 2 ♀.

RANGE.—Tropical Zone: southeastern Peru (Astillero; La Pampa to Honduras.)

We have also specimens from Peru. Transandean specimens average larger than those from Central America.¹ (3 ♂, wing 91 to 93 mm., tail 72 to 75 mm.)

(2984) ***Myiozetetes similis connivens* Berl. & Stolz.**

Myiozetetes connivens BERL. & STOLZ., Ornith., XIII, 1906, p. 87 (La Merced, Chanchamayo, Peru).

Myiozetetes similis, B. & T., 1885, p. 90 (Mapoto).

Zamora, 3 ♂; Rio Suno, 4 ♂, 2 ♀.

RANGE.—Tropical Zone; the species, Bolivia to Texas; the race, southern Peru to Colombia and the Orinoco.

(2985a) ***Myiozetetes similis pacificus* Chapm.**

Myiozetetes similis pacificus CHAPM., Am. Mus. Novit., No. 138, 1924, p. 2 (Santa Rosa, Ec.).

Myiozetetes columbianus, SCL., 1860e, p. 295 (Esmeraldas).

Myiozetetes tezicensis, S. & F., 1899b, p. 9 (Rio Peripa; Balzar).

Esmeraldas, 3.

¹ This form has since been described as *M. g. obscurior* Todd (Proc. Biol. Soc. Wash., XXXVIII, 1925, p. 96).

Subspecific Characters.—Underparts wax-yellow, deeper than in any other form of the species; resembling *Myiozetetes similis columbianus* Cab. & Heine of Colombia, in the absence of ochraceous-tawny in external margins of wings or tail in the adult; larger throughout than *columbianus*, the upperparts darker, inner margins of inner wing-quills more buffy. Resembling *Myiozetetes similis connivens* Berl. & Stolz. of eastern Peru to eastern Colombia, in the general color of the upperparts but the underparts deeper yellow, external margin of inner wing-quills greenish yellow; whitish or yellowish tips of wing-coverts more pronounced, inner margin of inner wing-quills less ochraceous; averaging larger. Three males: wing 91–95 mm., tail 75–79 mm., bill from nostril 11–12 mm. Three females: wing 85–89 mm., tail 67–74 mm., bill from nostril 10.5–11.5 mm.

RANGE.—Tropical Zone; northwestern Peru and western Ecuador.

(2987) *Myiozetetes luteiventris* (Scl.)

Elænia luteiventris SCL., P. Z. S., 1858, p. 71 (Rio Napo, Ec.).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone: Guiana to eastern Ecuador and Peru.

(2990) *Conopias cinchoneti* (Tsch.)

Tyrannus cinchoneti TSCH., Faun. Per., 1844–5, p. 151, pl. viii, fig. 2 (Peru).

Conopias cinchoneti, B. & T., 1885, p. 91 (Machay).

Above Baeza, 2 ♂.

RANGE.—Subtropical Zone, Peru to Colombia.

Our specimens agree with others from Peru. Recorded from western Colombia but not as yet from western Ecuador.

(2992) *Pitangus sulphuratus sulphuratus* (Linn.)

Lanius sulphuratus LINN., Syst. Nat., I, 1766, p. 137 (Cayenne).

Pitangus sulphuratus, GOODF., 1901, p. 705 (Rio Coca).

Rio Suno, 1 ♂.

RANGE.—Chiefly Tropical Zone: the species, Argentina to Texas.

This specimen resembles true *sulphuratus* but a series is required to determine the racial status of the eastern Ecuadorean bird. It is noteworthy that a species of such wide distribution should be unknown in western Ecuador. *Ostinops decumanus* presents a somewhat similar case.

(2996) **Pitangus lictor** (Licht.)

Lanius lictor LICHT., Verz. Doubl., 1823, p. 49 (Pará).

Pitangus lictor, S. & F., 1899b, p. 10 (Valle del Rio Santiago).

RANGE.—Tropical Zone, southern Brazil to Panama; recorded from eastern but not from western Ecuador.

We have no Ecuadorean specimens.

(3001) **Sirystes albocinereus** Scl. & Salv.

Sirystes albocinereus SCL. & SALV., P. Z. S., 1880, p. 156 (Sarayacu, Ec.); SCL., Cat. Bds. B. M., XIV, 1888, p. 181, pl. xiv.

RANGE.—Upper Amazonia to eastern Colombia.

We have no Ecuadorean specimens.

(3003) **Myiodynastes maculatus maculatus** (P. L. S. Müll.)

Muscicapa maculata P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 169 (Cayenne).

Myiodynastes nobilis, SCL., 1860e, p. 295 (Esmeraldas).

Myiodynastes audax, B. & T., 1885, p. 91 (Yaguachi); Tacz., 1877, p. 326 (Lechugal).

Myiodynastes audax nobilis, HART., 1902, p. 706 (Carondelet; Paramba; San Javier).

Esmeraldas, 4 ♂, 3 ♀; Manaví, 3 ♀, 2 ?; Daule, 1 ♂, 1 juv.; Santa Rosa, 1 ♂, 2 ♀.

RANGE.—Tropical Zone: the species, Amazon Valley to southern Mexico; the race, Amazon Valley to Costa Rica; not recorded from eastern Ecuador.

Ecuadorean specimens agree with true *maculatus*. Twenty-five Santa Marta specimens (*nobilis* Scl.) average less heavily streaked below and less definitely marked above, but I agree with Mr. Todd¹ that these differences are too variable to warrant recognition.

(3004) **Myiodynastes solitarius** (Vieill.)

Tyrannus solitarius VIEILL., Nouv. Dict. d'Hist. Nat., XXXV, 1819, p. 88 (Paraguay).

Myiodynastes solitarius SCL., Cat. Bds. B. M., XIV, 1888, p. 185 (Sarayacu).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone: Argentina to Guiana.

This specimen is in much-worn plumage. Nevertheless, the upper-

¹ Ann. Carn. Mus., XIV, 1922, p. 344.

parts are more conspicuously margined with pale yellow than in topotypical specimens. I have not seen *M. s. duncani* Chubb described from Guiana (Bull. B. O. C., XL, 1919, p. 62).

NOTE.—*Myiodynastes luteiventris* possibly occurs in eastern Ecuador. We have twelve specimens from eastern Peru (Perené, Astillero, La Pampa) and one from Bolivia (Tres Arroyas, Rio Espiritu Santo). All agree with a large topotypical series, and thus indicate the invalidity of *M. l. vicinior* Cory¹ from Yurimaguas, Peru. There is apparently no record of the occurrence of this species between this locality and the central Magdalena Valley, Colombia.²

(3005) *Myiodynastes bairdi* (Gambel)

Saurophagus bairdi GAMBEL, Journ. Acad. Nat. Sci. Phila., (2), I, 1847, p. 40 ("California," error; I propose Guayaquil, Ec.).

Tyrannus atrifrons SCL., P. Z. S., 1857, p. 274 (Guayaquil).

Myiodynastes atrifrons, Tacz., 1877, pp. 326, 753 (Tumbez).

Myiodynastes bairdi, B. & T., 1883, p. 556 (Guayaquil).

Manta, 5♂, 4♀; Daule, 1♂, 2♀; Santa Elena, 1♂; Chongoncito, 3♂, 2♀; Guayaquil, 1♀; Duran, 1♀; Santa Rosa, 1♂, 2♀; Casanga, 2♂, 2♀; Cebollal, 1♀; Peru, Dept. Piura: Sullana, 2♂, 1♀; Milagros, 1♀; Lamor, 1♀; Pílares, 1♂; Chilaco, 1♂; Paletillas, 3♂, 2♀; Palambla, 3♂, 4♀.

RANGE.—Equatorial Arid Fauna, northwestern Peru to western Ecuador.

This fine species is known only from the Pacific coast region where possibly it may be an arid Tropical Zone representative of its nearest relative, *Myiodynastes chrysocephalus* of the Subtropical Zone.

(3007) *Myiodynastes chrysocephalus minor* Tacz. & Berl.

Myiodynastes chrysocephalus minor TACZ. & BERL., P. Z. S., 1885, p. 91 (Machay; Mapoto, Ec.).

Myiodynastes chrysocephalus, SCL., 1869a, p. 143 (Pallatanga); 1860c, p. 92 (Nanegal); B. & T., 1884, p. 296 (Surupata); GOODF., 1901, p. 706 (Gualea).

Megarhynchus chrysocephalus, S. & F., 1899b, p. 10 (Gualea; Nanegal).

Megarhynchus chrysocephalus minor, MEN., 1911, p. 56 (Maquina, near San Nicolas).

Huigra; junction Chanchan and Chiguancay (Rhoads).

Gualea, 1♂; Rios Coco and Chimbo, 1♂; La Chonta, 2♀; El Chiral, 2♀; Zaruma, 1♂, 3♀; Punta Santa Ana, 1♂; San Bartolo, 1♂, 2♀; Alamor, 1♂; Sabanilla, 1♀; Rio Sardinias, 1♀; below Oyacachi, 2♂, 1♀; Baeza, 1♀.

RANGE.—Subtropical Zone: the species, southern Peru to Venezuela; the race, eastern and western Ecuador and Colombia, except Santa Marta.

¹ Field Mus. Pub., No. 190, 1916, p. 342.

² Chapman, Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 463.

To be distinguished from true *chrysocephalus* by its smaller size, more richly colored and more streaked underparts (the buff of the throat extending to the breast), and increased amount of tawny in the wings and tail. These differences are more pronounced in western than in eastern Ecuadorean birds, and are still further developed in Colombian specimens, exclusive of the Santa Marta region, where the less-streaked (but equally buff and tawny) *intermedius* is found.

(3006) **Megarhynchus pitangua pitangua** (Linn.)

Lanius pitangua LINN., Syst. Nat., I, 1766, p. 136 (Brazil).

Zamora, 1 ♂.

RANGE.—Tropical Zone: the species, Argentina to Mexico; the race, Argentina to Panama, except western Ecuador.

Our single specimen is apparently to be referred to this race.

(3006a) **Megarhynchus pitangua chrysogaster** Scl.

Megarhynchus chrysogaster SCL., P. Z. S. 1860, p. 281 (Babahoyo); 1860e, p. 295 (Esmeraldas).

Megarhynchus pitangua chrysogaster, B. & T., 1883, p. 557 (Guayaquil; Chimbo); 1885, p. 91 (Yaguachi); HART., 1898, p. 488 (Chimbo).

Megarhynchus pitangua, S. & F., 1899b, p. 10 (Vinces); GOODF., 1901, p. 706 (Guala).

Bucay (Rhoads).

Bahia de Caraques, 2 ♂; Chongoncito, 1 ♂, 1 ♀; Santa Rosa, 1 ♂; Zaruma, 1 ♂, 1 ♀; Portovelo, 2 ♀; Salvias, 1 ♂; Lunamá, 1 ♂; Celica, 1 ♂; Cebollal, 1 ♀. Peru: Milagros, 1 ♂, 1 ♀; Paletillas, 2 ♂, 1 ♀.

RANGE.—Tropical Zone; the race, western Ecuador.

Distinguished by its darker upperparts, more richly colored underparts, and (usually) chestnut crown-patch, only two of our specimens having this mark yellow.

(3008) **Onychorhynchus coronatus** (P. L. S. Müll.)

Muscicapa coronata P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 168 (Cayenne).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone: the species, Cayenne to Mexico and eastern Peru; the race, Cayenne to eastern Ecuador.

Aside from having a much narrower bill, this specimen agrees essentially with one from British Guiana. Having no specimens from eastern Peru, I am unable to comment on the status of *O. castelnaudi* Dev. to which I provisionally, but evidently erroneously, referred a specimen from Villavicencio, Col.

(3011) ***Onychorhynchus occidentalis* (Scl.)**

Muscivora occidentalis SCL., P. Z. S., 1860, p. 282 (Babahoyo); B. & T., 1883, p. 557 (Guayaquil); S. & F., 1899b, p. 10 (Vinces; Balzar).

Esmeraldas, 1 ♂, 2 ♀; Chone, 1 ♂, 1 ♀; Santa Rosa, 2 ♂, 1 ♀.

RANGE.—Tropical Zone; western Ecuador.

A very distinct species apparently representing *swainsoni* of south-eastern Brazil, of which, however, I have seen no specimens.

(3015) ***Cnipodectes subbrunneus* (Scl.)**

Cyclorhynchus subbrunneus SCL., P. Z. S., 1860, p. 282 (Babahoyo, Ec.); 1860e, p. 295 (Esmeraldas).

Cnipodectes subbrunneus, S. & F., 1899b, p. 10 (Rio Peripa).

Esmeraldas, 2 ♂, 1 ♀; Rio de Oro, 2 ♂; Bucay, 1 ♀; Chimbo, 1 ♀; La Chonta, 1 ♀.

RANGE.—Tropical Zone; Peru to Panama.

Four males measure, wing 90 to 96 mm. and agree in color. Three females measure, wing 70 to 74 mm. and agree in color. All seven have the mandible flesh-color. A female from La Chonta, however, measures, wing 82 mm., is decidedly browner above than any of the other birds and has the mandible blackish; the latter fact may be attributable to immaturity.

Dr. Sclater (Cat. Bds. B. M., XIV, 1888, p. 198) records "*Cnipodectes minor*" from "Santa Rita," Ecuador, but expresses doubts regarding the validity of this form. Lacking specimens from Peru. I am unable to say whether *minor* possesses characters other than the alleged differences in size which prove to be sexual, but an adult female and an immature male from La Morelia in southeastern Colombia are more rufous above than average west Ecuadorean birds.

(3017) ***Myiobius barbatus barbatus* (Gmel.)**

Muscicapa barbata GMEL., Syst. Nat., I, 1789, p. 933 (Cayenne).

Myiobius atricaudus atricaudus, TODD., Proc. Biol. Soc. Wash., XXXV, 1922, p. 35 (Zamora spec. only).

Zamora, 1 ♂, 1 ♀; Rio Suno, 6 ♂, 1 ♀.

RANGE.—Tropical Zone, Guiana, Orinoco (Suapure), eastern Colombia, eastern Ecuador and eastern Peru south to the Amazon.

While, as stated below, I agree with Mr. Todd in believing *barbatus* and *atricaudus* to be specifically distinct, I cannot follow him in according similar rank to *barbatus* and *mastacalis*. Wholly aside from the probability of their ranges being separated by the Rio Madeira, as Mr. Todd suggests, the exceedingly close resemblance between a specimen of the former from Zamora and of the latter from Baron Melgaco, on the Gy-Paraná, induces me to believe that as their respective ranges approach the banks of this river a sufficiently large series of both would demonstrate their intergradation by individual variation.

(3018a) *Myiobius atricaudus portovelæ* Chapm.

Myiobius atricaudus portovelæ CHAPM., Am. Mus. Novit., No. 138, 1924, p. 3 (Portovelo, Ec.).

Myiobius barbatus, SCL., 1860d, p. 282 (Babahoyo); 1860e, p. 295 (Esmeraldas); TACZ., 1877, p. 332 (Palma); S. & F., 1899b, p. 10 (Rio Peripa).

Myiobius barbatus atricaudus, L. & R., 1922, p. 74 (below Nanegal and Guala).

Myiobius atricaudus atricaudus, TODD., Proc. Biol. Soc. Wash., XXXV, 1922, p. 35 (Ecuador records, except Zamora).

Bucay; junction Chanchan and Chiguancay (Rhoads).

Esmeraldas, 4 ♀; Rio de Oro, 2 ♀; Chongon, 1 ?; Daule, 1 ♂; Naranjo, 2 im.; Bucay, 1 ♂, 1 ♀; Chimbo, 2 ♂; Puna Is., 1 ♀; Rio Jubones, 1 ♂; Santa Rosa, 3 ♂, 1 ?; Portovelo, 5 ♂, 1 ♀, 2 ?; Guainche, 1 ♀; Cebollal, 1 ♂, 1 ♀; Alamor, 1 ♂.

Subspecific Characters.—Similar to *Myiobius atricaudus atricaudus* Lawr. of Panama, but upperparts lighter, browner, Saccardo's olive rather than olive; underparts more richly colored, the throat and breast with olive-ochre rather than with ecru-olive, the abdominal region Pinard yellow rather than straw-yellow.

RANGE.—Tropical Zone: the species, Costa Rica to western Ecuador and the central Orinoco; the race, western Ecuador and northwestern Peru.

The characters of this race are most fully developed in southwestern Ecuador, from Guayaquil southward

(3020) *Myiobius villosus villosus* Scl.

Myiobius villosus SCL., P. Z. S., 1860, p. 93 (Nanegal, w. Ec.); HART., 1898, p. 488 (Chimbo; Cachavi); S. & F., 1899b, p. 10 (Rio Peripa ?); GOODF., 1901, p. 706 (Guala); MEN., 1911, p. 56 (Mindo).

Mindo, 5 ♂, 1 ♀.

RANGE.—Subtropical and Tropical Zones: the species, Colombia to southern Peru; the race, Colombia and western Ecuador.

Evidently occurs in both the tropics and subtropics.

(3020a) *Myiobius villosus peruvianus* Todd

Myiobius villosus peruvianus TODD., Proc. Biol. Soc. Wash., XXXV, 1922, p. 32 (Rio Távora, s. e. Peru).

Myiobius villosus, B. & T., 1885, p. 91 (Machay; Mapoto).

Rio Suno, 4 ♂; below San José, 2 ♂, 2 ♀.

RANGE.—Tropical and Subtropical Zones, eastern Bolivia to eastern Ecuador.

Several of these specimens are nearer true *villosus*, but as a whole comparison with the type shows that the series should be referred to *peruvianus*. The chief distinguishing character of *peruvianus* is its paler rump. Our specimens are from the tropics, but Machay and Mapoto are in the subtropics.

(3022a) *Pyrhomyias cinnamomeus pyrrhopterus* (Hartl.)

Myiobius pyrrhopterus HARTL., Rev. Zool., 1843, p. 289 (New Granada).

Myiobius cinnamomeus, SCL., 1858c, p. 554 (Pinipi); B. & T., 1885, p. 91 (Mapoto; Machay; Baños; San Rafael); S. & F., 1899b, p. 11 (Pun); GOODF., 1901, p. 706 (Papallacta); L. & R., 1922, p. 74 (Baeza).

Salvias, 1 ♂, 1 ♀, 1 im.?; Loja, 3 ♂, 3 ♀; Zamora, 1 ♂; Sabanilla, 1 ♂, 1 ♀; below Oyacachi, 6 ♂, 4 ♀; below Papallacta, 1 ♂; Baeza, 2 ♂, 5 ♀; Rio Sardinas, 1 ♂; Puente del Rio Quijos, 1 ♂; upper Sumaco, 3 ♂, 4 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to Colombia; the race, Ecuador and Colombia.

I have before given the characters of this form (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 467). Specimens from at least as far north as the Chanchamayo region of eastern Peru may be referred to true *cinnamomeus* but Ecuadorean birds, while not always typical, are *pyrrhopterus*.

While common in eastern Ecuador and in all three Colombian ranges of the Andes, this is an apparently rare bird in western Ecuador, whence our only specimens are from Salvias on the Zaruma-Zaguaro trail.

(3026) *Terenotriccus erythrurus fulvularis* (Salv. & Godm.)

Myiobius fulvularis SALV. & GODM., Biol. Cent. Am., Aves, II, 1889, p. 58 (Santa Fé, Panama); S. & F., 1899b, p. 11 (Rio Peripa).

Myiobius erythrurus, SCL., 1858a, p. 70 (Napo); 1860e, p. 295 (Esmeraldas); B. & T., 1883, p. 557 (Chimbo).

Myiobius fulvogularis, HART., 1898, p. 488 (Cachaví).

Myiobius erythrurus fulvularis, L. & R., 1922, p. 74 (road to Gualea).

Esmeraldas, 1 ♂; Rio de Oro, 2 ♀; Zamora, 1 ♂; Rio Suno, 8 ♂, 3 ♀; below San José, 2 ♂.

RANGE.—Tropical Zone: the species, Bolivia to Honduras; the race, eastern and western Ecuador to Honduras.

Eastern Ecuadorean specimens average larger than those from western Ecuador but, on the whole, agree with them in color. The series, in part or as a whole, is not, in my opinion, separable from Panama examples.

(3030) *Myiotriccus ornatus stellatus* (Cab.)

Myiobius stellatus CAB., J. f. O., 1873, p. 158 (Ecuador); B. & T., 1883, p. 557 (Chimbo); 1884, p. 297 (Cayandeled; Pedregal); S. & F., 1899, p. 11 (Gualea; Guailabamba); HART., 1902, p. 607 (Paramba; Lita); L. & R., 1922, p. 74 (Gualea; Nanegal; Mindo).

Myiobius ornatus, SCL., 1859a, p. 144 (Pallatanga); 1860c, p. 93 (Nanegal); GOODF., 1901, p. 806 (Santo Domingo; Gualea).

Myiobius ornatus stellatus, MEN., 1911, p. 56 (Santo Domingo; Gualea).

Rio de Oro, 1 ♀; Cerro Manglar Alto, 1 ♂; Mindo, 3 ♂; El Chiral, 5 ♂, 3 ♀; La Chonta, 5 ♂, 1 ♀.

RANGE.—Tropical and Subtropical Zones: the species, western Ecuador and Colombia; the race, western Ecuador and western Colombia.

True *ornatus* of the Bogotá region is larger, the forehead averages whiter and the tip of the tail is not quite so black as in *stellatus*. The color differences are slight and the two races can best be distinguished by size (see Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 470). Represented in the East Andes by *M. phœnicurus*.

(3031) *Myiotriccus phœnicurus* (Scl.)

Tyrannula phœnicura SCL., P. Z. S., 1854, p. 113, pl. 66, fig. I (Quijos, Ec.).

Myiobius phœnicurus, SCL., 1858a, p. 70 (Napo); B. & T., 1885, p. 91 (Mapoto).

Guayaba, 1 ♂; Sabanilla, 2 ♂, 3 ♀; Zamora, 4 ♂; Rio Suno, 4 ♂, 2 ♀; below San José, 2 ♂, 2 ♀; lower Sumaco, 3 ♂; near Macas, 2; Zuna (7,000 ft.), 1.

RANGE.—Chiefly Tropical Zone: the species, southeastern Peru to eastern Colombia.

Five specimens from southeastern Peru are not separable from our Ecuadorean birds, evidence of the invalidity of *M. p. aureiventris* Scl.

(3033) *Myiophobus flavicans* (Scl.)

Myiobius flavicans SCL., P. Z. S., 1860, p. 464 (Pallatanga, Ec.); Cat. Bds. B. M. XIV, 1888, p. 205, pl. xvii; S. & F., 1899b, p. 11 (Niebli); B. & T., 1884, p. 297 (Cayandeled; Surupata; Pedregal); GOODF., 1901, p. 706 (Pichincha and Papallacta, 8,000–11,500 ft.); MEN., 1911, p. 57 (Santo Domingo); L. & R., 1922, p. 74 (Niebli).

Junction Chanchan and Chiguancay; Pagma Forest (Rhoads).

Zaruma, 1 ♂, 2 ♀; El Chiral, 5 ♂, 5 ♀; San Bartolo, 2 ♂, 2 ♀; Alamor, 3 ♂, 2 ♀; below Oyacachi, 5 ♂, 4 ♀; Baeza, 4 ♂, 3 ♀; Puente del Rio Quijos, 1 ♂, 1 ♀; lower Sumaco, 5 ♂, 3 ♀. Peru: Chaupe, 4 ♂, 2 ♀.

RANGE.—Subtropical Zone: the species, northern Peru to the Caracas region, Venezuela; the race, northern Peru, Ecuador, and Colombia.

Specimens from eastern Ecuador are deeper yellow below, with more ochraceous on the flanks and ventral region. They can, however, be matched by several examples in our western Ecuadorean series and I feel are not sufficiently differentiated to have developed diagnostic characters.

(3034) *Myiophobus phœnicomitra* (Tacz. & Berl.)

Myiobius phœnicomitra TACZ. & BERL., P. Z. S., 1885, p. 91 (Mapoto).

Zamora, 1 ♂, 1 ♀; 1 ?; lower Sumaco, 2 ♂.

RANGE.—Subtropical Zone: the species, eastern and western Ecuador and western Colombia; the race, eastern Ecuador.

Three of these specimens have the crown-patch ochraceous-tawny. Represented in western Ecuador by *M. litæ*.

(3035) *Myiophobus litæ* (Hart.)

Myiobius litæ HART., Bull. B. O. C., XI, 1901, p. 40 (Lita, n. w. Ec.); 1902, p. 607 (Lita; Cachyjacu).

RANGE.—Western Ecuador and western Colombia; probably Subtropical Zone.

We have only a western Colombian specimen of this species. It differs from two examples of *M. phœnicomitra* chiefly in having the crown-patch yellow instead of ochraceous-tawny. If, however, this should be a variable character as it is, for example, in *M. flavicans*, these two representative forms are apparently not more than sub-specifically distinct.

(3037) *Myiophobus pulcher pulcher* (Scl.)

Myiobius pulcher SCL., P. Z. S., 1860, p. 464 (Quito); S. & F., 1899b, p. 11 (Nanegal); GOODF., 1901, p. 706 (Gualea; Nanegal); L. & R., 1922, p. 74 (Nanegal).

'Quito,' 2; Gualea, 1 ♂.

RANGE.—Subtropical Zone of western Ecuador and the West Andes of Colombia.

I have seen no specimens from Peru.

(3038) **Myiophobus pulcher bellus** (Scl.)

Myiobius bellus SCL., P. Z. S., 1862, p. 111 (Bogotá).

Below Baeza, 1 ♂.

RANGE.—Subtropical Zone: the species, northern Peru to Colombia; the race, eastern Ecuador and eastern Colombia.

A typical example of this race.

(3040) **Myiophobus fasciatus fasciatus** (P. L. S. Müll.)

Muscicapa fasciata P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 172 (Cayenne).

RANGE.—Tropical Zone: the species, Argentina to Panama; the race, southern Brazil to Colombia and Guiana.

Rio Suno, 2 ♀ juv.; below San José, 1 ♂.

These specimens are apparently referable to true *fasciatus*. *Myiophobus f. saturatus* was described by Berlepsch & Stolzmann, from Chirimoto, southeast of Chachapoyas, in northeastern Peru, on the basis of two specimens. They also referred to it a single male from Santa Ana on the Urubamba River. In default of topotypical specimens I have followed these authors in applying the name *saturatus* to Urubamba Valley birds.¹ Since that date we have received a single specimen from Tulumayo in the Vitoc Valley, which, if one may judge from comparative proximity to the type-locality, is far more likely to be typical of *saturatus* than are Urubamba Valley examples. This Tulumayo specimen cannot be matched by any one of seven specimens from the Urubamba. It is much blacker, less rufescent above, agreeing therefore with the original description of *saturatus*. Nor can I find a specimen in our large representative series of this species which agrees with it. Assuming therefore that this Tulumayo specimen may properly be called *saturatus* it seems clear that the Urubamba specimens do not belong to this race. In the light of this evidence, my remark (*loc. cit.* p. 97) that some of the Urubamba birds could be matched by Colombian specimens assumes a new significance, and I find it now difficult to discover any difference between them and true *fasciatus*.

(3042) **Myiophobus fasciatus crypterythrus** (Scl.)

Myiobius crypterythrus SCL., P. Z. S., 1860, p. 464 (Pallatanga; Babahoyo; Esmeraldas, Ec.); Tacz., 1877, p. 326 (Tumbez); B. & T., 1883, p. 558 (Guayaquil;

¹ Bull. U. S. Nat. Mus., No. 117, 1921, p. 97.

Chimbo); 1884, p. 297 (Cayandeled); 1885, p. 92 (Yaguachi); HART., 1898, p. 488 (Chimbo); S. & F., 1899*b*, p. 11 (Vinces; Balzar); HART., 1902, p. 607 (Paramba; San Javier); MEN., 1911, p. 57 (Mindó).

Bucay; junction of Chanchan and Chiguancay (Rhoads).

Esmeraldas, 2♂, 3♀; Chone, 1?; Chongoncito, 1♂, 1♀; Bucay, 5♂, 1♀; Chimbo, 1♀; Puna Is., 2♂, 3?; Río Jubones, 1♂; Santa Rosa, 1♂, 2♀; Portovelo, 3♂, 1♀; Zaruma, 1♀; Guainche, 2♀; Las Piñas, 1♂; Alamor, 5♂; Río Pindo, 2♂; Río Pullango, 1♂; Cebollal, 2♂. Peru: Palambla, 2♂, 2♀; Huancabamba, 3♂, 2♀.

RANGE.—Chiefly Tropical Zone; western Ecuador and northwestern Peru.

Peruvian birds are wholly typical. The occurrence of this bird at Huancabamba on Amazonian drainage suggests that it has reached the Pacific coast by way of the Marañon route. This theory finds support in the fact that *crypterythrurus* is more closely related to *saturatus* of eastern Peru than to any other form of the species. Bangs and Noble,¹ indeed, refer Huancabamba birds to *saturatus*.

(3043) *Myiophobus cryptoxanthus* (Scl.)

Myiobius cryptoxanthus SCL., P. Z. S., 1860, p. 465 (Gualaquiza; Zamora, Ec.); B. & T., 1885, p. 92 (Mapoto); S. & F., 1899*b*, p. 12 (Valle de Zamora).

Zamora, 3♂; below San José, 3♂, 1♀.

RANGE.—Eastern Ecuador (Subtropical Zone?).

The occurrence of *M. fasciatus* below San José indicates that *cryptoxanthus* is not a representative of that species.

(3046) *Pyrocephalus rubinus heterurus* Berl. & Stolz.

Pyrocephalus rubineus heterurus BERL. & STOLZ., P. Z. S., 1892, p. 381 (Lima); HART., 1898, p. 488 (Ibarra).

Pyrocephalus rubineus, SCL., 1854, p. 113 (Ecuador); 1859, pp. 46, 144 (Pallatanga); 1860, pp. 282, 295 (Esmeraldas); TACZ., 1877, pp. 326, 752 (Tumbez); B. & T., 1883, p. 558 (Guayaquil); S. & F., 1899, p. 12 (Ibarra; Concepcion; Tumbaco; Guayaquil; Vinces; Balzar); GOODF., 1901, p. 706 (Ibarra; Chillo Valley); MEN., 1911, p. 57 (Tumbaco; Santo Domingo); L. & R., 1922 (Cumbaya; Zambiza).

Esmeraldas, 2♂, 2♀; Chone, 2♂, 3♀; La Plata Is., 3♂, 2♀; Santa Elena, 4♂; Chongoncito, 1♂, 2♀; Daule, 1♂; Duran, 1♂, 3♀; Bucay, 1♂; Puna Is., 1♂; Río Jubones, 1♂; Santa Rosa, 7♂, 3♀; Portovelo, 1♀; Casanga, 2♂, 1♀; Río Pindo, 1♂; Cebollal, 1♂; Río Pullango, 1♂; Guainche, 1♂; Tumbaco, 2♂.

RANGE.—Arid Tropical Zone: the species, Argentina to southwestern United States; the race, western Peru (northwestern Chile?) to western Ecuador; Guailabamba Cañon and tributary valleys and western Colombia.

¹ 'The Auk,' 1918, p. 455.

Ecuadorean specimens from the coastal region are slightly smaller than a topotypical series, and the females average less streaked below. Specimens from the Tumbaco valley are larger, agreeing in size with a Peruvian series. We have no specimens from eastern Ecuador but in a series from the Marañon Valley the females, though larger, exhibit, as a rule, the rich coloration which is one of the distinguishing characteristics of *P. r. saturatus*.

(3051) ***Empidochanes pæcilurus* Scl.**

Empidochanes pæcilurus SCL., P. Z. S., 1862, p. 112 (Bogotá).

Guayaba, 1 ♂, 1 ♀; Sabanilla, 2 ♀; Zamora, 2 ♂, 1 ♀.

RANGE.—Subtropical Zone, southern Peru to Colombia.

Comparison of four topotypical specimens of "*peruana*" from Utcuyacu, eastern Peru. with five from Colombia, shows that the characters assigned to the Peruvian race are individual rather than racial in nature. Colombian specimens are quite as richly colored below, and have no more fuscous on the outer primary than do some from Peru.

(3057) ***Mitrephanes berlepschi berlepschi* Hart.**

Mitrephanes berlepschi HART., Novit. Zool., IX, 1902, p. 608 (Bulón, Ec.).

RANGE.—The species, northwestern Ecuador to eastern Panama.

I have seen no Ecuadorean specimens of this species. We have, however, Colombian and Panamanian examples of *eminulus* Nels. which I have elsewhere treated as a subspecies of *berlepschi* (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 472).

(3058) ***Sayornis nigricans latirostris* (Cab. & Heine)**

Aulanax latirostris CAB. & HEINE, Mus. Heine, II, 1859, p. 68 (Peru; see Bangs & Penard, Bull. Mus. Comp. Zool., 1919, p. 28).

Sayornis cineracea, SCL., 1858b, p. 457 (Cuenca); 1860a, p. 68 (Pallatanga); B. & T., 1885, p. 87 (San Rafael; Mapoto); HART., 1898, p. 486 (Paramba; Chimbo); S. & F., 1899b, p. 3 (Cuenca; Tumbaco; Rio San Pedro); GOODF., 1902, p. 702 (San Nicolas; Papallacta); MEN., 1911, p. 58 (Tumbaco).

Sayornis nigricans, B. & T., 1883, p. 552 (Chimbo).

Junction Chanchan and Chiguanca (Rhoads).

Esmeraldas, 1 ♀; Bucay, 3 ♂; Portovelo, 1 ♀; Zaruma, 1 ♂; Casanga, 1 ♂; Guainche, 1 ♂; El Paso, 1 ♂; Rio Pullango, 1 ♂, 1 ♀; Pichincha, 1 ♀; Valley de Cumbaya, 1 ♂, 1 ♀; Baeza, 1 ♂.

RANGE.—The species, northern Argentina to California; the race, Argentina to Colombia.

As with many other species, wide latitudinal, implies also a wide altitudinal range, and the present species demonstrates this rule by occurring from the coast to the tableland.

(3063) ***Empidonax griseipectus* Lawr.**

Empidonax griseipectus LAW., Ann. Lyc. Nat. Hist. N. Y., IX, 1869, p. 236 (Puna Is., Ec.); SCL., Cat. Bds. B. M., XIV, 1888, p. 225 (Babahoyo).

Empidochanes griseipectus, B. & T., 1883, p. 558 (Chimbo).

Bucay (Rhoads).

Naranjo, 1 ♂; Chimbo, 2 ♀; La Puente, 1 ♂; Guainche, 1 ♂; Alamor, 1 ♂; Pulango, 1 ♂. Peru: Paletillas, 3 ♂, 1 ♀; Milagros, 1 ♀; Palambra, 1 ♂.

RANGE.—Tropical Zone; southwestern Ecuador and northwestern Peru.

A distinct species of which no near relative is known.

(3064a) ***Empidonax trailli trailli* (Aud.)**

Muscicapa trailli AUD., Birds Amer. (folio), I, 1828, pl. 45 (woods along the prairie lands of the Arkansas River).

Empidonax trailli, S. & F., 1899b, p. 13 (Valle del Zamora; Gualaquiza).

Rio Suno, 1 ♂ (March 16).

RANGE.—The species breeds throughout the greater part of the United States; winters south to northern Argentina.

Ridgway refers Salvadori and Festa's Zamora record to *alnorum*, but our single specimen is evidently true *trailli*. We have ten specimens of this species from Embarcacion, Arg.

(3066) ***Empidonax virescens* (Vieill.)**

Platyrhynchus virescens VIEILL., Nouv. Dict. d'Hist. Nat., XXVII, 1818, p. 22 (near Philadelphia, Pa.).

Empidonax acadicus, B. & T., 1883, p. 558 (Chimbo); HART., 1898, p. 488 (Cachaví).

Esmeraldas, 1 ♂, 3 ♀ (Nov. 4-26); Rio de Oro, 1 ♀ (Jan. 24).

RANGE.—Breeds in eastern United States north to Connecticut; winters southward to western Ecuador.

(3067) *Nuttallornis borealis* (Swains.)

Tyrannus borealis SWAINS., Fauna Bor.-Am., II, 1831 (1832), p. 141, pl. 35 (Cumberland House, Saskatchewan).

Contopus borealis, GOODF., 1901, p. 707. (Gualea).

RANGE.—Breeds in northern United States northward into Canada and southward in the Rocky Mts., wintering southward to Peru.

We have four specimens from Chaupe, northern Peru, but none from Ecuador. The Chaupe birds, taken on January 27 and 28, are undergoing a complete, evidently postnuptial, molt.

(3069) *Myiochanes fumigatus ardesiacus* (Lafr.)

Tyrannula ardesiaca LAFR., Rev. Zool., 1844, p. 80 (Colombia).

Contopus ardesiacus, B. & T., 1885, p. 92 (Machay; Mapoto); GOODF., 1901, p. 707 (Baeza).

Baeza, 2♂, 2♀.

RANGE.—Subtropical Zone: the species, northern Argentina to Costa Rica; the race, central Peru, eastern Ecuador, Colombia, and western Venezuela.

(3069a) *Myiochanes fumigatus zarumæ* Chapm.

Myiochanes fumigatus zarumæ CHAPM., Am. Mus. Novit., No. 138, 1924, p. 4 (above Zaruma, Prov. del Oro, w. Ec.).

Contopus ardesiacus, SCL., 1859, p. 144 (Pallatanga); 1860c, p. 92 (Perucho; Puellaro); B. & T., 1883, p. 558 (Chimbo); 1884, p. 297 (Cayandeled; Bugnac); GOODF., 1901, p. 707 (Gualea); S. & F., 1899b, p. 12 (Nanegal).

Huigra; junction Chanchan and Chiguancay Rivers; Chunchi (Rhoads).

Huigra, 1♀; Pallatanga, 1♂; La Puente, 1♂; El Chiral, 2♀; Zaruma, 5♂, 3♀; Portovelo, 2♂, 1♀; Salvias, 1♀; Alamor, 3♂, 1♀; Cebollal, 1♂. Peru: 1♂, 4♀.

RANGE.—Subtropical Zone of western Ecuador and northwestern Peru.

Subspecific Characters.—Very near *M. f. fumigatus* (Lafr. & d'Orb.) of the Subtropical Zone of Bolivia, but smaller; in unworn plumage the upperparts grayer, less olivaceous, the cap blacker; underparts grayer, the throat, and especially abdomen, with less of a yellow tinge. Resembling *M. f. ardesiacus* (Lafr.) of the Subtropical Zone of Colombia and eastern Ecuador, but underparts much paler and with a slight olivaceous tinge, the throat usually paler than the breast, the center of the abdomen paler than the throat, in some specimens nearly ivory-white; the under tail-coverts much like the center of the abdomen. Similar to *M. f. cineraceus* (Lafr.) of northern Venezuela, but underparts slightly darker and tinged with olive; the throat, abdomen and lower tail-coverts not so purely white, the outer vane of the outer rectrix not lighter than the inner; larger throughout.

(3071) *Myiochanes virens* (Linn.)

Muscicapa virens LINN., Syst. Nat., 1766, p. 327 (Carolina).

Contopus bogotensis, SCL., 1858b, p. 459 (Zamora; Gualaquiza).

Contopus virens, S. & F., 1899b, p. 13 (Valle del Rio Santiago).

Zamora, 1 ♀, Nov. 28; Rio Suno, 1 ♂, 1 ♀, Feb. 4-11; 1 ♀ March 5; below San José de Sumaco, 1 ♀, March 22.

RANGE.—Breeds in the eastern United States north to southern Canada; winters southward to Peru.

The Zamora specimen is in mid-postnuptial molt which is nearly completed in the Rio Suno birds and entirely finished in the one from below San José.

(3072) *Myiochanes richardsoni richardsoni* (Swains.)

Tyrannula richardsoni SWAINS, Fauna Bor.-Am. II, 1831, p. 146, pl. 46 (Cumberland House, Saskatchewan).

Contopus richardsoni, B. & T., 1883, p. 558 (Chimbo); 1884, p. 297 (Pedregal; El Placer); 1885, p. 92 (Machay; Mapoto).

Esmeraldas, 1 ♂, Nov. 10; Rio de Oro, 1 ♀, Jan. 12; Santa Rosa, 1 ♂, Dec. 1; Sabanilla, 1 ♂, Nov. 7, 1 ♀, Nov. 13; Zamora, 1 ♀, 1 ♀, Nov. 23-Dec. 2, 1 ♀, Oct. 24; Rio Suno, 2 ♂, 1 ♀, Feb. 4-March 15; below San José, 1 ♂, 1 ♀, April 3-10; below Oyacachi, 2 ♀, Jan. 29.

RANGE.—The species, breeds from southern Mexico north to Alaska; the race, winters southward to Bolivia.

Some of the specimens above recorded are unquestionably *M. richardsoni*, others may be *virens*. All have the lower bill dark brownish or blackish. Assuming that the races of *richardsoni* do not reach South America, I have not considered them in this connection.

Specimens taken as late as November 10 and 13 still retain the now much-worn nuptial plumage, but the postnuptial molt begins as early as November 7, and evidently continues until the middle of February, though it is complete in a specimen from Chaupe, north Peru, taken January 28.

(3073) *Myiochanes punensis* (Lawr.)

Contopus punensis LAWR., Ann. Lyc. Nat. Hist. N. Y., IX, 1869, p. 237 (Puna Is., Ec.); TACZ., 1877, p. 744 (Lechugal); B. & T., 1883, p. 558 (Guayaquil).

Chone, 1 ♀; Manta, 1 ♀; Chongoncito, 1 ♀; Guayaquil, 2 ♀; Puna Is., 4 ♂, 4 juv.; Portovelo, 1 ♂; Casanga, 2 ♀; Alamor, 3 ♂, 4 ♀, 1 ♀. Peru: Palambra, 1 ♂, 3 ♀; Huancabamba, 3 ♂, 3 ♀; Huarandosa, 1 ♂.

RANGE.—Equatorial Arid Fauna from the valley of the Marañon to Manaví.

This is a bird of semi-arid country, unknown from the heavily forested west Colombian coast, which has apparently reached the Pacific coast from the Marañon valley, whence it is recorded from as far south as Chota. (Tacz., Orn. Per. II, p. 319). In this hot, arid country, forms elsewhere restricted to the Tropical Zone ascend to unusual elevations. Witness, for example, the occurrence of *Furnarius cinnamomeus* at Huancabamba. Hence we need not be surprised to find *M. punensis* in the scrubby growth at Huancabamba, or even at Chota (8,000 ft.). We should, however, be surprised to find it in the vicinity of Lake Junin (14,000 ft.) far above timber-line. For this reason, as well as for the evidence furnished by measurements, I do not believe that *Empidonax andinus* Tacz., synonymized by its describer under *M. punensis*, and treated by various authors as a race or near ally of that species, may properly be placed in this group.

Collected by Jelski, we may accept the locality whence it is recorded ("environs du lac Junin") as definite, when it is far more likely that a migrating individual of *M. virens*¹ or *M. richardsoni* would be found at this great altitude than an individual of a species characteristic of the arid tropics, which is known in Peru only from the Marañon valley and the northwestern coast.

As I have already implied, the apparent absence of *M. brachytarsus* in western Colombia prohibits intergradation of *punensis* with that species on the Pacific coast. The probable Amazonian origin of *punensis*, however, suggests its connection with *brachytarsus*² in the upper Amazon valley, but in the absence of specimens from this region this theory must for the present remain unproven.

As with *brachytarsus*, there is a marked difference between specimens of *punensis* in fresh and in even slightly worn plumage. The latter are much grayer above and whiter below, due to the disappearance of the yellow element in the feathers. Even in its brightest plumage, however, *punensis* is grayer above and whiter below than *brachytarsus*.

(3077) ***Myiochanes nigrescens* Scl. & Salv.**

Myiochanes nigrescens SCL. & SALV., P. Z. S., 1880, p. 157 (Sarayacu, Ec.); S. & F., 1899b, p. 13 (Valle del Rio Santiago).

¹ As Berlepsch and Hartert have already suggested, Nov. Zoöl., IX, 1902, p. 50.

² This is the bird commonly called *brachytarsus andinus*; but for the reasons above given I do not accept this name. This leaves the South American form of *brachytarsus* nameless pending an examination of the type of *andinus*. See in this connection Todd & Carriker, 'Birds of Santa Marta Region,' p. 352.

Sarayacu, 1.

RANGE.—Known only from eastern Ecuador.

A distinct form having no close relationship with any known species.

(3080) *Myiarchus tyrannulus tyrannulus* (P. L. S. Müll.)

Muscicapa tyrannulus P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 169 (Cayenne).

Myiarchus tyrannulus tyrannulus, TODD., Proc. Biol. Soc. Wash., XXXV, 1922, p. 185 (Monog.; eastern Ecuador included under "Range").

RANGE.—Chiefly Tropical Zone: the species, Argentina to the Caribbean; the race, as above except eastern Brazil.

Doubtless occurs in eastern Ecuador, but I have no record from that region, other than that given above.

(3085) *Myiarchus ferox ferox* (Gmel.)

Muscicapa ferox GMEL., Syst. Nat., I, 1789, p. 934 (Cayenne).

Myiarchus ferox, GOODF., 1901, p. 707 (Archidona).

Myiarchus ferox ferox, TODD, Proc. Biol. Soc. Wash., XXXV, 1922, p. 197 (Monog.).

RANGE.—Tropical Zone: the species, Argentina to Panama; the race, French Guiana and Bahia to Colombia and Peru.

We have no specimens from Ecuador, but three from Amazonian Colombia are referred to this race by Mr. Todd (*loc. cit.*), who includes Ecuador in the range of this race.

(3088) *Myiarchus cephalotes cephalotes* Tacz.

Myiarchus cephalotes TACZ., P. Z. S., 1879, p. 671 (Tambillo, Peru); B. & T., 1885, p. 93 (Machay); TODD, Proc. Biol. Soc. Wash., XXXV, 1922, p. 206 (Monog.; "Guayaquil").

Loja, 1 ♀; Zamora, 1 ♀; Puente del Rio Quijos, 1 ♂; Baeza, 3 ♂, 3 ♀; below Oyacachi, 1 ♂, 1 ♀; upper Sumaco, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone, Bolivia to Venezuela.

Mr. Todd (*loc. cit.*) records two specimens as doubtfully from "Guayaquil," but although this species is recorded from western Colombia there is no definite record of its occurrence in western Ecuador.

NOTE.—*Myiarchus pelzelni* Berl. is recorded from southeastern Colombia, but there is no definite record from Ecuador.

(3091) *Myiarchus phaeocephalus* Scl.

Myiarchus phaeocephalus SCL., P. Z. S., 1860, p. 281 (Babahoyo, Ec.); LAW., 1869, p. 237 (Puna Is.); TACZ., 1877, p. 326 (Lechugal); B. & T., 1883, p. 559 (Guayaquil); 1885, p. 93 (Yaguachi); S. & F., 1899b, p. 13 (Vinces; Balzar); TODD, Proc. Biol. Soc. Wash., XXXV, 1922, p. 208 (Monog.; Ecuador localities, except Loja).

Esmeraldas, 1 ?; Manaví, 3 ♂, 2 ♀; Puna Is., 2 ♂, 1 juv.; Chongoncito, 1 ♂, 1 ♀; Santa Rosa, 2 ♂, 3 ♀, 1 ? . Peru: Paletillas, 1 ♂, 2 ♀; Chilaco, 1 ?; San Ignacio, 2 ♀; Perico, 1 ♂, 1 ♀, 2 ?; Huarandosa, 1 ♂, 2 ♀.

RANGE.—Equatorial Arid Fauna into the Marañon Valley.

A distinct species presumably of Amazonian origin. Specimens from the Marañon Valley are smaller than those from the Ecuadorean coast and, in fresh plumage, average darker, less grayish. In the extension of the Subtropical Zone, in the coastal Andes of northwestern Peru, *phaeocephalus* is apparently represented by the gray-backed *M. toddi*, known from one specimen taken at Palambla.¹

(3093) *Myiarchus tuberculifer nigriceps* Scl.

Myiarchus nigriceps SCL., P. Z. S., 1860, p. 68 (Pallatanga, Ec.); 1860e, p. 295 (Esmeraldas); B. & T., 1883, p. 559 (Chimbo); 1884, p. 297 (Bugnac); HART., 1898, p. 488 (Chimbo; Paramba); S. & F., 1899b, p. 13 (La Concepcion; Niebli); GOODF., 1901, p. 707 (Intag; Gualaia); MEN., 1911, p. 59 (Gualaia; Santo Domingo); L. & R., 1922, p. 74 (Mindo; Gualaia).

Myiarchus tuberculifer nigriceps, TODD, Proc. Biol. Soc. Wash., XXXV, 1922, p. 216 (Monog.; Ecuador references).

Bucay; Huigra; junction Chanchan and Chiguancay Rivers; Chunchi; Pagma Forest (Rhoads).

Chone, 1 ♂; Chongon Hills, 1 ♂; Rios Coco and Chimbo, 1 ♂; Zaruma, 3 ♂; Portovello, 1 ♂; Salvias, 1 ♀; Guachanamá, 1 ♀; San Bartolo, 1 ♂; Celica, 1 ♂.

RANGE.—Tropical and Subtropical Zones: the species, Bolivia to Panama; the race, western Ecuador and western Colombia.

Even in freshly plumaged specimens there is much variation in the color of the back, which in some specimens is grayish green. The head in all our examples, however, is shining jet-black.

Chone and Chongon Hills are both in the Tropical Zone, but the remaining localities are all Subtropical; as we proceed northward all the western Colombian records for this species are from the Tropical Zone.

¹ Chapman, Amer. Mus. Novit., No. 67, 1923, p. 10.

(3095) **Myiarchus tuberculifer tuberculifer** (*Lafr. & d'Orb.*)

Tyrannus tuberculifer LAFR. & D'ORB., Syn. Av., I, Mag. de Zoöl., 1837, p. 43 (Guarayos, e. Bol.).

Zamora, 1 ♂; Sabanilla, 2 ♀; Guayaba, 1 ♂; Rio Suno, 1 ♀. Northern Peru: San Ignacio, 1 ♀.

RANGE.—Tropical and Subtropical Zones: the species, Bolivia to Panama; the race, Bolivia to Colombia and Dutch Guiana.

The eastern Ecuadorean form of *M. tuberculifer* should be *M. t. tuberculifer*, but except for a distinct ochraceous margin on the inner vane of the inner wing-quills, two of three birds (Sabanilla; Zamora) can be exactly matched in color and in size by western Ecuadorean specimens of *nigriceps*; the Zamora bird, indeed, is labeled *nigriceps* by Mr. Todd,¹ who has recently revised this genus. The third seems to me to be nearer *nigriceps* than to *tuberculifer*. A specimen taken at Guayaba, November 20, is in too worn plumage to be determinable.

The San Ignacio bird is fairly typical of *tuberculifer*. The latter locality is in the Tropical Zone, while the fauna of the Ecuadorean localities cited is that of the Subtropical Zone. Data are at present lacking to determine whether the characters of these specimens are an expression of individual variation or whether they present a problem in zonal distribution.

(3100) **Tyrannus tyrannus** (*Linn.*)

Lanius tyrannus LINN., Syst. Nat., I, 1758, p. 94 (Carolina).

Lanius pipiri, GOODF., 1901, p. 707 (Gualea); L. & R., 1922, p. 74 (Mindó, Oct. 14).

Zamora, 2 ♂ im. (Oct. 25, 28).

RANGE.—Breeds in Temperate North America; winters as far south as Bolivia.

These specimens are in juvenal plumage, but while there is no evidence of a molt in progress, the upperparts from crown to upper tail-coverts contain a number of the gray feathers of the first winter plumage, which were apparently acquired by a partial post-juvenal molt.

(3101) **Tyrannus niveigularis** *Scl.*

Tyrannus niveigularis SCL., P. Z. S., 1860, p. 281 (Babahoyo, Ec.); TACZ., 1877, pp. 326, 753 (Tumbez); HART., 1902, p. 609 (San Javier); MEN., 1911, p. 59 (Santo Domingo).

¹ Proc. Biol. Soc. Wash., XXXV, 1922, pp. 181-218.

Esmeraldas, 2 ♀; Manta, 1 ♂; La Plata Is., 3 ♂, 2 ♀; Daule, 1 ♀; Duran, 1 ♂; Bucay, 1 ♀; Puna Is., 1 ♀. Peru: Chilaco, 2 ♂, 3 ♀; Lamor, 1 ♂, 1 ♀.

RANGE.—Equatorial Arid Fauna, northwestern Peru to southwestern Colombia.

A distinct species, the origin of which is obscure. In its square tail it resembles *T. vociferans* and *T. verticalis*, and is possibly nearer to the former than to any other member of the genus.

(3103) ***Tyrannus melancholicus melancholicus* Vieill.**

Tyrannus melancholicus VIEILL., Nouv. Dict. d'Hist. Nat., XXXV, 1819, p. 48 (Paraguay); SCL., 1858a, p. 70 (Napo); 1858b, p. 457 (Gualaquiza); 1859a, p. 143 (Pallatanga); 1860c, p. 92 (Perucho); 1860d, p. 281 (Babahoyo); LAW., 1869, p. 237 (Puna Is.); TACZ., 1877, p. 326 (Tumbez; Santa Luzia); B. & T., 1883, p. 559 (Chimbo); 1884, p. 298 (Cayandeled); 1885, p. 93 (Mapoto); HART., 1898, p. 488 (Cachaví; Paramba); S. & F., 1899b, p. 13 (Gualaquiza; La Concepcion; Vines); GOODF., 1901, p. 707 (Santo Domingo); MEN., 1911, p. 59 (Santo Domingo).

Bucay; junction Chanchan and Chiguancay; Huigra, Pagma Forest (Rhoads).

Esmeraldas, 3 ♀; Manaví, 3 ♂, 1 ♀; Mindo, 3 ♂; Guayaquil, 1 ♂; Bucay, 2 ♂, 1 ♀; Puna Is., 1 ♀; Jambeli, 1 ♀; Tembleque, 1 ♂; Santa Rosa, 1 ♂, 1 ♀; Zaruma, 1 ♂, 1 ♀; Portovelo, 2 ♂; Guainche, 1 ♂; Las Piñas, 1 ♂; Alamor, 1 ♀; Cebollal, 1 ♀; Zamora, 2 ♂, 2 ♀; Rio Suno, 2 ♂.

RANGE.—The species, Argentina to Texas; the race, Argentina through western South America to Colombia.

I follow Bangs and Penard (Bull. M. C. Z., 1921, p. 377) in referring Ecuadorean specimens to true *melancholicus*.

(3107) ***Muscivora tyrannus* (Linn.)**

[*Muscicapa*] *tyrannus* LINN., Syst. Nat., I, 1766, p. 325 (Cayenne).

Milvulus tyrannus, L. & R., 1922, p. 74 (between Guápulo and Cumbaya, "rare"; below Mindo).

RANGE.—Argentina to Mexico.

We have no specimens from Ecuador.

FAMILY PIPRIDÆ. MANAKINS

(3116a) ***Pipra erythrocephala berlepschi* Ridgw.**

Pipra erythrocephala berlepschi RIDGW., Proc. Biol. Soc. Wash., XIX, 1906, p. 117 (Nauta, n. e. Peru); MEN., 1911, p. 60 (Gualaquiza).

Pipra auricapilla, SCL., 1858b, p. 457 (Gualaquiza); ALLEN, 1889, p. 72 (Napo); S. & F., 1899b, p. 14 (Valle del Zamora; Gualaquiza); GOODF., 1901, p. 708 (Rio Coca).

Zamora, 4♂, 2♀; Rio Suno, 6♂, 4♀; below San José, 2♂, 1♀.

RANGE.—Tropical Zone: the species, Guiana to northern Peru and eastern Panama, unknown from western Ecuador; the race, northern Peru, eastern Ecuador, and eastern Colombia.

These birds are evidently typical. The apparent absence of this species from western Ecuador is noteworthy.

(3118) ***Pipra mentalis minor* Hart.**

Pipra mentalis minor HART., Nov. Zoöl., 1898, p. 489 (Cachaví, Ec.).

Pipra mentalis subsp. *minor*, S. & F., 1899b, p. 14 (Rio Peripa).

Esmeraldas, 2♂; Rio de Oro, 1♀.

RANGE.—Tropical Zone: the species, western Ecuador to Mexico; the race, western Ecuador and western Colombia.

(3122) ***Pipra leucocilla coracina* Scl.**

Pipra coracina SCL., P. Z. S., 1856, p. 29 (Bogotá); 1858a, p. 71 (Napo).

Pipra leucocilla, SCL., 1854, p. 114 (Quijos); S. & F., 1899b, p. 14 (Gualaquiza); GOODF., 1901, p. 709 (Baeza).

Guayaba, 1♂; Zamora, 2♂, 1♀; Rio Suno, 1♂, 3♀; below San José, 7♂, 3♀.

RANGE.—Tropical Zone: the species, southern Peru and eastern Brazil to Costa Rica; the race, eastern Ecuador and eastern Colombia.

Ecuadorean specimens have a slightly longer crest than those from the Bogotá region, expressing therefore an approach toward *P. l. comata* of Peru. Although represented in western Colombia this species is unknown in western Ecuador.

(3124) ***Pipra isadorei isadorei* Scl.**

Pipra isadorei SCL., Rev. Zoöl., 1852, p. 9 (Bogotá).

Pipra isidori, SCL., 1854, p. 114 (Quijos); GOODF., 1901, p. 708 (Baeza).

Zamora, 1♂, 2♀; below San José, 6♂, 3♀.

RANGE.—Tropical Zone: the species, northern Peru to Colombia; the race, eastern Peru to eastern Colombia.

These specimens agree with topotypes. I have not seen *P. i. leucopyga* of northern Peru.

(3127) *Pipra velutina velutina* Berl.

Pipra velutina BERL., Ibis, 1883, p. 492 (Veragua); HART., 1898, p. 488 (Cachaví).

RANGE.—Tropical Zone: the species, Costa Rica to northwestern Ecuador; the race, Ecuador to eastern Panama.

We have no Ecuadorean specimens. While apparently representing *P. coronata*, the two birds are separated both geographically and by what seem to me to be excellent specific characters.

(3128) *Pipra coronata* Spix

Pipra coronata SPIX, Av. Bras., II, 1825, p. 5, pl. vii, fig. 1 ("in sylvis fluminis Amazonum"); SCL., 1854, p. 114 (Quijos); 1858a, p. 71 (Napo).

Pipra cyaneocapilla, ALLEN, 1889, p. 72 (Napo); S. & F., 1899b, p. 14 (Valle del Rio Santiago).

Rio Suno, 7 ♂, 5 ♀; below San José, 3 ♂, 3 ♀.

RANGE.—Upper Amazonia from eastern Peru to southeastern Colombia.

(3137) *Tyranneutes stolzmanni* (Hellm.)

Pipra stolzmanni HELLM., Ibis, 1906, p. 44 (Maribitañas, Brazil).

Pipra virescens, S. & F., 1899b, p. 14 (Valle del Rio Santiago).

Zamora, 1 ♀; Rio Suno, 7 ♂, 2 ♀; below San José, 2 ♂, 1 ♀.

RANGE.—Tropical Zone, southern Peru to the lower Orinoco.

Seven males show faint traces of a yellow crown-patch, but all these specimens, together with others from southern Peru (Rio Tavara), the upper and lower Orinoco, agree in color and in tail characters.

(3138) *Cirrhpipra filicauda* (Spix)

Pipra filicauda SPIX, Av. Bras., II, 1825, p. 6, pl. viii, figs. 1, 2 (ad pagum St. Pauli in sylvis fluminis Solimoëns"); ALLEN, 1889, p. 72 (Napo); GOODF., 1901, p. 708 (Archidona).

Cirrhpipra filicauda, SCL., 1858a, p. 71 (Napo).

'Napo,' 3 ♂; Rio Suno, 4 ♂ im., below San José, 1 ♀.

RANGE.—Tropical Zone, from Peru to Venezuela.

Unknown west of the Andes.

(3141) *Machæropterus striolatus striolatus* (Bonap.)

Pipra striolata BONAP., P. Z. S., 1837, p. 122 (w. Brazil); SCL., 1858a, p. 72 (Napo).

Machæropterus striolatus, ALLEN, 1889, p. 73 (Napo); S. & F., 1899b, p. 14 (Valle del Rio Zamora).

Zamora, 2♂, 1♀; Rio Suno, 4♂, 1♀; below San José, 3♂, 2♀; 'Napo,' 3♂, 1♀.

RANGE.—Tropical Zone: the species, upper Amazonia to the Atrato Valley, Colombia; the race, upper Amazonia. Represented in southeastern Brazil by the nearly allied *M. regulus*.

(3143) *Allocotopterus deliciosus* (Scl.)

Pipra deliciosa SCL., P. Z. S., 1860, p. 90 (Nanegal, Ec.).

Machæropterus deliciosus, ALLEN, 1889, p. 73 (Nanegal); HART., 1898, p. 488 (Cachaví); S. & F., 1899b, p. 15 (Gualea); GOODF., 1901, p. 709 (Gualea; Intag; Mindo); L. & R., 1922, p. 75 (Mindo; Gualea).

Mindo, 4♂, 3♀; Nanegal, 2♂.

RANGE.—Lower part of the Subtropical Zone, northwestern Ecuador and southwestern Colombia.

This very distinct species appears to have no near ally.

(3144) *Chloropipo flavicapilla* (Scl.)

Pipra flavicapilla SCL., Rev. Zoöl., 1852, p. 9 (Bogotá).

Chloropipo flavicapilla, B. & T., 1885, p. 93 (Mapoto).

RANGE.—Subtropical Zone; eastern Ecuador and Colombia.

We have no Ecuadorean specimens. Although found in the West Andes of Colombia, this species has not been recorded from western Ecuador.

(3146) *Chloropipo holochlora holochlora* Scl.

Chloropipo holochlora SCL., Cat. Bds. B. M., XIV, 1888, p. 287 (Bogotá; Sarayacu).

Zamora, 1♂; Rio Suno, 5♂, 3♀; below San José, 4♂, 2♀.

RANGE.—Tropical Zone: the species, upper Amazonia to eastern Panama; the race, eastern Ecuador to eastern Colombia.

These specimens agree with a topotype from Villavicencio.

(3147) *Chloropipo holochlora litæ* Hellm.

Chloropipo holochlora litæ HELLM., Nov. Zoöl., 1906, p. 325, (Lita, n. w. Ec.).

Chloropipo holochlora, HART., 1898, p. 488 (Cachaví; Paramba).

RANGE.—Tropical Zone; northwestern Ecuador to eastern Panama.

We have specimens from southwestern Colombia, but none from Ecuador.

(3151) **Piprites chloris tschudii** (Cab.)

Hemipipo tschudii CAB., J. f. O., 1874, p. 99 (Niñabamba, c. Peru).

Piprites chlorion, SCL., 1858a, p. 72 (Napo).

Zamora, 1 ♀, 1 juv.; Rio Suno, 3 ♂, 1 ♀; below San José, 1 ♀.

RANGE.—Tropical Zone: the species, Bolivia to Guiana; the race, eastern Peru, eastern Ecuador and eastern Colombia.

Although I have no evidence of the geographic contact of *chloris* of southeastern Brazil with any of the other forms of this group, the differences between it and them seem to be of only racial value.

(3156) **Masius chrysopterus** (Lafr.)

Pipra chrysoptera LAFR., Rev. Zoöl., 1843, p. 97 (Bogotá).

Masius chrysopterus, B. & T., 1885, p. 93 (Mapoto); GOODF., 1901, p. 708 (Baeza; confined to East Andes).

Macas, 1 ♂, 1 ♀; lower Sumaco, 3 ♂, 7 ♀; San José de Sumaco, 1 ♀; Baeza, 1 ♂, 1 ♀; below Oyacachi, 1 ♂.

RANGE.—Subtropical Zone; northern Peru through eastern Ecuador to eastern Colombia.

The crest in Ecuadorean specimens averages somewhat more deeply colored than in those from Colombia. Represented in western Ecuador by *M. coronulatus*, with which, however, it is not known to intergrade.

(3158) **Masius coronulatus** Scl.

Masius coronulatus SCL., P. Z. S., 1860, p. 91 (Nanegal, Ec.); ALLEN, 1889, p. 72 (Nanegal); S. & F., 1899b, p. 14 (Guailea; Intac); GOODF., 1901, p. 708 (Cana-zacota; Guailea; Intag); MEN., 1911, p. 60 (Guailea); L. & R., 1922, p. 75 (Guailea; Nanegal).

Nanegal, 2 ♂; Guailea, 1 ♂, 6 ♀; Las Piñas, 1 ♀; Alamor, 2 ♀.

RANGE.—Subtropical Zone; western Ecuador and western Colombia.

The Nanegal and Guailea specimens are native-made skins. It is surprising that the only specimens of this species we have collected were found in southwestern Ecuador and that all these are females

(3162) **Chiroxiphia pareola napensis** Miller

Chiroxiphia napensis MILLER, Bull. A. M. N. H., XXIV, 1908, p. 338, pl. xxv (Napo, Ec.).

Chiroxiphia pareola, ALLEN, 1889, p. 72 (Napo).

Napo, 3 ♂ (inc. type), 1 ♀; Rio Suno, 5 ♂, below San José, 1 ♀.

RANGE.—Tropical Zone: the species, Bolivia to Guiana; the race, southeastern Colombia, eastern Ecuador (and northeastern Peru?).

Represented in Central America by *C. linearis*. Unknown in western Ecuador.

(3174a) ***Manacus manacus interior* Chapm.**

Manacus manacus interior CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 624 (Villavicencio, Col.).

Chiromachæris gutturosa, SCL., 1854, p. 114 (Quijos).

Chiromachæris manacus, S. & F., 1899, p. 15 (Gualaquiza and Valle de Zamora specimens only); GOODF., 1901, p. 709 (Archidona).

Manacus manacus, ALLEN, 1889, p. 73 (Napo).

Zamora, 1 ♂ ad., 1 ♀; Rio Suno, 5 ♂ ad., 3 ♀; below San José, 1 ♀.

RANGE.—Tropical Zone: the species, South America north of the Amazon, southwest of the Madeira to Matto Grosso and São Paulo; the race, eastern Ecuador and eastern Colombia, east to the lower Orinoco.

These specimens agree with the type.

(3174b) ***Manacus manacus leucochlamys* Chapm.**

Manacus manacus leucochlamys CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 626 (Esmeraldas, Ec.).

Chiromachæris manacus, SCL., 1860c, p. 89 (Nanegal); 1860d, p. 279 (Babahoyo); 1860e, p. 296 (Esmeraldas); B. & T., 1883, p. 559 (Chimbo); HART., 1898, p. 488 (Paramba; Chimbo; Cachaví); S. & F., 1899b, p. 15 (Rio Peripa specimens only).

Manacus manacus, MEN., 1911, p. 61 (Gualea).

Bucay (Rhoads).

Esmeraldas, 3 ♂ ad., 2 ♂ im., 1 ♀; Manaví, 3 ♂ ad., 2 ♀.

RANGE.—Tropical Zone, northwestern Ecuador.

Records from the more southern localities listed above are doubtless based on specimens intermediate between *leucochlamys* and *maximus*. The distribution of this species in western Ecuador is treated under the last-named race.

(3174c) ***Manacus manacus maximus* Chapm.**

Manacus manacus maximus CHAPM., Amer. Mus. Novit. No. 138, 1924, p. 7 (Alamor, Ec.).

Naranjo, 1 ♂ im., 1 ♀; Bucay, 5 ♂ ad., 2 ♂ im.; Chimbo, 2 ♀; Rios Chimbo and Coco, 2 ♂ ad.; Rio Jubones, 1 ♂; La Chonta, 3 ♀; Santa Rosa, 1 ♂ ad., 1 ♂ im., 1 ♀; Alamor, 2 ♂ ad., 5 ♂ im., 2 ♀.

Subspecific Characters.—Resembling *M. m. leucochlamys* Chapm. of northwestern Ecuador in color, but larger throughout; the wings and tail longer, bill and feet stouter; male with the white "cape" wider, its feathers and those of the "beard" longer.

RANGE.—Subtropical and Tropical Zones, southwestern Ecuador, intergrading with *M. m. leucochlamys* in the Tropical Zone of west-central Ecuador.

Manacus manacus has been found on the Pacific coast from southwestern Colombia to southwestern Ecuador. The species, as a rule, inhabits the humid Tropical Zone, but in southwestern Ecuador it is known only from the Subtropical Zone. It has not been found in western Colombia north of the Patia, and its conspicuousness in connection with the amount of collecting which has been done from Buenaventura northward leads to the conclusion that it does not occur in that region.

Although we have not found this species in the Marañon, its apparent absence from western Colombia, and particularly its presence in the Subtropical Zone of southwestern Ecuador, induces the belief that it has reached the Pacific coast by the Marañon route. We have found in a number of instances that species of the humid Tropical Zone of upper Amazonia, in ranging westward, have reached the Subtropical Zone of the western slope of the coast Andes, only to find their further progress westward blocked by the arid conditions which there prevail below the Subtropical Zone. They could, therefore, continue to extend their range only toward the north with a subsequent return to the Tropical Zone, as appears to have been done by *M. manacus*.

It is especially interesting to observe that the species attains its maximum size at the only place in its exceptionally wide range where it reaches the Subtropical Zone. As it returns to the Tropical Zone its size decreases and in northwestern Ecuador is about the average for the species.

(3179) *Neopipo cinnamomea* (Lawr.)

Pipra cinnamomea LAWR., Proc. Acad. Nat. Sci. Phila., 1868, p. 429 (e. Peru).

Neopipo cinnamomea, SCL., Cat. Bds. B. M., XIV, 1888, p. 303 (Sarayacu).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone, eastern Peru to Guiana.

This specimen closely resembles one labeled as female, with a query, from the Potaro River, British Guiana (= *helenæ* McConnell), but has a large, yellow, cinnamon-tipped crown-patch instead of a small cinnamon one. The type of *cinnamomea* Lawr., labeled as coming from the

"upper Amazon," is unsexed. It agrees with the Guiana bird in having a cinnamon crown but differs from it and the Rio Suno specimen in having the crown and nape browner, the lower back somewhat deeper. I am inclined to believe that these differences are due to the age of the type-skin, and that there is but one race of this species.

(3185) *Scotothorus turdinus amazonus* (Scl.)

Heteropelma amazonum SCL., P. Z. S., 1860, p. 466 (Chamicuros, e. Peru); Cat. Bds. B. M., XIV, 1888, p. 320 (Sarayacu).

Zamora, 4 ♂; Sabanilla, 1 ♀; lower Sumaco, 1 ♂, 2 ♀; Macas, 1; San José, 1 ♂; below San José, 1 ♂, 2 ♀.

RANGE.—Tropical and Subtropical Zones: the species, southern Brazil to southern Mexico; the race, southeastern Peru to eastern Colombia, east to the upper Orinoco.

•

(3186) *Scotothorus turdinus rosenbergi* (Hart.)

Heteropelma rosenbergi HART., Nov. Zool., V, 1898, p. 489 (Cachabí, n. w. Ec.); S. & F., 1899b, p. 15 (Rio Peripa).

Heteropelma wallacii, TACZ., 1877, p. 332 (Palma).

Esmeraldas, 1 ♂, 1 ♀; Mindo, 1 ♀; Chimbo, 1 ♂, 1 ♀; La Puente, 1 ♀; Alamor, 1 ♀.

RANGE.—The race, Tropical Zone, western Ecuador.

Specimens from western Ecuador differ from eastern Ecuadorean birds so little that they almost intergrade by individual variation. As a rule, however, western Ecuadorean birds are paler below, with the abdomen grayer, less rufescent, and the upperparts lighter, more olivaceous. Four specimens from Chaupe northeast of Huancabamba resemble *rosenbergi* below and *amazonum* above, and are thus exactly intermediate between the two. This fact indicates the Marañon origin of *rosenbergi*, a theory which is supported by the occurrence, in eastern Panama, of two forms of this group, *rosenbergi* and a representative of *stenorhynchus* of northern Colombia and northern Venezuela. While the relationships of these birds are quite clear, their distribution in eastern Panama, as shown by our specimens, is exactly the reverse of what one would expect. Thus, all the specimens of *rosenbergi* came from Mt. Tacarcuna, from elevations between 3,600 and 4,600 feet, and of these seven came from the northern, or Caribbean, slope, while the eight specimens of the *stenorhynchus* form came from the Rio Tuyra on the south side of the Tacarcuna range.

(3193) *Sapayoa ænigma* Hart.

Sapayoa ænigma HART., Nov. Zoöl., X, 1903, p. 117 (Rio Sapayo, n. w. Ec.).

RANGE.—Tropical Zone; northwestern Ecuador to eastern Panama.

We have specimens from throughout the range of this species except Ecuador.

A distinct species with no known near allies.

(3195) *Laniisoma buckleyi* (Scl. & Salv.)

Ptilochloris buckleyi SCL. & SALV., P. Z. S., 1880, p. 158 (Pindo, Ec.).

RANGE.—Known only from eastern Ecuador.

This is evidently a representative of *L. squamata* of southeastern Brazil from which its range is widely separated. We have no specimens.

(3198) *Heterocercus aurantiivertex* Scl. & Salv.

Heterocercus aurantiivertex SCL. & SALV., P. Z. S., 1880, p. 157 (Sarayacu, Ec.); Cat. Bds. B. M. XIV, 1888, p. 325 (Sarayacu).

RANGE.—Known only from eastern Ecuador, where it apparently represents *H. flavivertex* of Guiana.

FAMILY COTINGIDÆ. COTINGAS, BELL-BIRDS, UMBRELLA-BIRDS

(3200) *Tityra cayana* (Linn.)

Lanius cayana LINN., Syst. Nat., I, 1766, p. 137 (Cayenne).

Tityra cayana, GOODF., 1901, p. 709 (Rio Sunc; Rio Coca).

RANGE.—Tropical Zone: chiefly north of the Amazon; eastern Peru to Guiana.

We have specimens from southeastern Colombia but none from Ecuador.

(3202) *Tityra semifasciata semifasciata* (Spix)

Pachyrhynchus semifasciatus SPIX, Av. Bras., II, 1825, p. 32, pl. xlv, fig. 2 (Pará).

Tityra personata, ALLEN, 1889, p. 73 (Napo sp. only).

Tityra semifasciata, S. & F., 1899b, p. 16 (Gualaquiza); GOODF., 1901, p. 709 (Rio Coca).

'Napo,' 1 ♂; Rio Sunc, 1 ♂; near Macas, 2 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, southern Brazil to Mexico; the race, Amazonia.

These specimens agree with one from the lower Amazon.

(3202a) *Tityra semifasciata esmeraldæ* Chapm.

Tityra semifasciata esmeraldæ CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 320 (Esmeraldas, Ec.).

Tityra personata, SCL., 1860e, p. 295 (Esmeraldas); ALLEN, 1889, p. 73 (San Miguel, 4,000 ft., sp. only); GOODF., 1901, p. 709 (Santo Domingo).

Tityra semifasciata, HART., 1898, p. 489 (Paramba).

Esmeraldas, 4 ♂ (inc. type), 2 ♀; Chone, 1 ♂.

RANGE.—Tropical Zone, northwestern Ecuador and southwestern Colombia.

.(3204) *Tityra nigriceps* Allen

Tityra nigriceps ALLEN, Auk, 1888, p. 287 (headwaters of the Napo).

? *Tityra nigriceps gualæ* LÖNN. & RENDH., Arkiv. für Zoöl., Band 14, No. 25, 1922, p. 75 (near Gualea, 1 ♂).

'Napo,' 1 ♂ (the type).

RANGE.—Eastern and western Ecuador (Subtropical Zone).

Of this species we have only the type. The black on top of the head extends to just behind the eyes, the hindhead and nape being mixed with white. This pied marking, however, indicates, I believe, immaturity, and in the fully adult male the whole head would be solid black as in *brasiliensis*, but this color would extend farther back than in that species. The black area on the chin and throat is 20 mm. broad, wider, therefore, than in any other described species. The tail is tipped with white as in *semifasciata*, but except for a grayish basal shaft-streak, the remainder of each feather is black.

The species may prove to be a subtropical representative of *semifasciata*. The differentiating characters attributed to *T. n. gualæ* Lönn. & Rendh. appear to be shown by the type of *nigriceps*, and I conclude, therefore, that *gualæ* is not separable.

(3207) *Erator albitorques albitorques* (Du Bus)

Tityra albitorques DU BUS, Bull. Acad. Brux., XIV, 1847, p. 104 (Pérou); ALLEN, 1889, p. 73 (Napo); B. & T., 1883, p. 559 (Guayaquil).

Bucay (Rhoads).

Daule, 1 ♂.

RANGE.—Tropical Zone; the species Peru to Mexico; the race, Peru to eastern Panama.

I have not material to determine the exact range in South America of this species. The specimen above recorded differs from an eastern Ecuadorean specimen of *buckleyi* only in the increased amount of gray

on the basal part of the rectrices. In *albitorques* this occupies slightly more than one-half the feather; in *buckleyi* the rectrices are gray only for the basal third, but on most of the feathers this color extends up the outer vane somewhat over half the length of the feather. The difference between the males is thus purely racial in character and, were not the females so unlike, one might believe that *albitorques* is the west coast representative of *buckleyi*.

(3209) ***Erator buckleyi* (Salv. & Godm.)**

Tityra buckleyi SALV. & GODM., Biol. Cent. Am. Aves, II, 1890, p. 120 ("Yanayacu," e. Ec.).

Tityra inquisitor, GOODF., 1901, p. 710 (Archidona).

'Napo,' 1 ♂.

RANGE.—Tropical Zone, eastern Colombia and eastern Ecuador (and eastern Peru ?).

In the amount of gray at the base of the tail, a Florencia, southeastern Colombia, male is nearer to *inquisitor* than it is to *buckleyi*, but in the white auriculars it resembles the latter. It is, therefore, intermediate between the two. In the color of the lores, a male of *inquisitor erythrogenys*, from Caicara, on the Orinoco, is intermediate between this form and *buckleyi*, indicating the intergradation of the latter with the former.

(3213) ***Platypsaris homochrous homochrous* (Scl.)**

Pachyrhamphus homochrous SCL., P. Z. S., 1859, p. 142 (Pallatanga, Ec.); 1860d, p. 279 (Babahoyo); 1860f, p. 429 (Pallatanga).

Hadrostomus homochrous, TACZ., 1877, p. 326 (Lechugal); B. & T., 1885, p. 93 (Yaguachi); HART., 1898, p. 489 (Chimbo); S. & F., 1899b, p. 16 (Rio Peripa; Vines); GOODF., 1901, p. 710 (Santo Domingo; Guanacillo).

Bucay (Rhoads).

Esmeraldas, 2 ♀; Manaví, 4 ♂, 4 ♀; Daule, 1 ♂, 5 ♀; Duran, 2 ♂, 1 ♀; Bucay, 1 ♂, 1 ♀; Santa Rosa, 2 ♂; Zaruma, 3 ♀; Alamor, 1 ♂.

RANGE.—Tropical Zone: the species, northwestern Peru to Santa Marta, Colombia; the race, this area, excluding Santa Marta.

(3214) ***Platypsaris minor* (Less.)**

Querula minor LESS., Traité d'Orn., 1831, p. 363 (Cayenne).

Hadrostomus minor, GOODF., 1901, p. 710 (Archidona).

Rio Suno, 1 ♂ im., 2 ♀.

RANGE.—Tropical Zone; Bolivia to Guiana, eastern (but not western) Ecuador and eastern Colombia.

(3216a) ***Pachyrhamphus peruanus* Hart. & Goods.**

Pachyrhamphus peruanus HART. & GOODS., Nov. Zool., XXIV, 1917, p. 410 ("Chanchamayo, state of Cuzco, southeastern Peru" = Dept. Junin, east Peru?).

Macas region, 1 ♀

RANGE.—Eastern Peru and eastern Ecuador.

A female from the Macas region agrees with the description of the type and only other recorded specimen of this species in general coloration, but has the head grayish olive-green with only a narrow nuchal band "ash-grey" and a conspicuous yellow eye-ring. At the most, however, these differences indicate only a possible subspecific difference between the Peruvian and Ecuadorean forms of this rare bird.

(3218) ***Pachyrhamphus versicolor versicolor* (Hartl.)**

Vireo versicolor HARTL., Rev. Zool., 1843, p. 289 (Colombia).

Pachyrhamphus versicolor, SCL., 1858a, p. 71 (Napo); B. & T., 1884, p. 298 (Cayandeled); 1885, p. 93 (Machay); S. & F., 1899b, p. 16 (Gualea); GOODF., 1901, p. 710 (Intag); MEN., 1911, p. 61 (Anca, Nanegal).

Baeza, 2 ♂, 1 ♀; below Oyacachi, 2 ♂, 1 ♀; lower Sumaco, 1 ♂, 4 ♀.

RANGE.—Subtropical Zone: the species, southeastern Peru to Venezuela and Costa Rica; eastern and western Ecuador.

Ecuadorean birds are typical. In Peruvian specimens the males have, as a rule, fewer bars on the abdomen.

(3219) ***Pachyrhamphus xanthogenys* Salvad. & Festa**

Pachyrhamphus xanthogenys SALVAD. & FESTA, Boll. Mus. Tor., XIII, 1898, No. 330, p. 1 (Rio Zamora, Ec.); 1899b, p. 16 (Valle del Zamora).

Below San José, 1 ♂.

RANGE.—Known only from the type and the specimen here recorded.

(3221) ***Pachyrhamphus rufus* (Bodd.)**

Muscicapa rufa BODD., Tabl. Pl. Enl., 1783, p. 27 (Cayenne).

Pachyrhamphus rufus, S. & F., 1899b, p. 16 (Valle del Zamora; Valle del Rio Santiago).

RANGE.—Tropical Zone: the species, Paraguay to Colombia; in Ecuador known only from the eastern side.

We have no specimens from Ecuador.

(3222) *Pachyrhamphus spodiurus* Scl.

Pachyrhamphus spodiurus SCL., P. Z. S., 1860, pp. 279, 296 (Babahoyo, Ec.); 1860e, p. 296 (Esmeraldas); B. & T., 1883, p. 559 (Chimbo); 1885, p. 93 (Yaguachi); SCL., Cat. Bds. B. M. XIV, 1888, p. 341, pl. XXV; S. & F., 1899b, p. 16 (Vinces); GOODF., 1901, p. 710 (Santo Domingo).

Bucay (Rhoads).

Daule, 1 ♂, 1 ♀; Portovelo, 1 ♀.

RANGE.—Tropical Zone, western Ecuador.

The bird figured as the female of this species in the 'Catalogue of Birds in the British Museum' is apparently *P. cinnamomeus*. The two specimens recorded above, which I assume are females of *spodiurus*, are smaller than *spodiurus* (wing 69 to 71 mm.) and much paler throughout, the upperparts being pale ochraceous-tawny rather than rich tawny. If, as I assume, these two birds are females of *spodiurus*, they indicate its marked distinctness from other species of this genus in which the male is black, but the female largely olive-green above, yellowish below.

(3223) *Pachyrhamphus cinnamomeus* Lawr.

Pachyrhamphus cinnamomeus LAW., Ann. Lyc. Nat. Hist. N. Y., VII, 1861, p. 295 (Lion Hill, Panama); HART., 1898, p. 489 (Chimbo; Cachaví).

Bucay (Rhoads).

Esmeraldas, 4 ♀; Manaví, 1 ♂, 2 ♀; Chimbo, 1 ♂; Santa Rosa, 2 ♀; Portovelo, 1 ♀.

RANGE.—Tropical Zone, western Ecuador to southern Mexico.

Ecuadorean specimens agree with the type and topotypes.

(3224a) *Pachyrhamphus castaneus saturatus* Chapm.

Pachyrhamphus castaneus saturatus CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 628 (La Morelia, Col.).

Pachyrhamphus rufus, SCL., Cat. Bds. B. M., XIV, 1888, p. 343 (Sarayacu).

RANGE.—Tropical Zone: the species, Paraguay to Colombia; the race, eastern Colombia and eastern Ecuador.

We have no specimens from Ecuador.

(3226) *Pachyrhamphus polychropterus variegatus* (Spix)

Pachyrhynchus variegatus SPIX, Av. Bras., II, 1825, pl. xliii, p. 31 (Bangs and Penard designate "upper Amazon, near Fonteboa," Bull. M. C. Z., LXIV, 1921, p. 386).

Pachyrhamphus niger, GOODF., 1901, p. 710 (Archidona).

RANGE.—Tropical Zone: the species, Paraguay to Guiana and Colombia; the race, upper Amazonia.

We have specimens from eastern Colombia, but none from Ecuador.

(3231) ***Pachyrhamphus albogriseus salvini* Richm.**

Pachyrhamphus salvini RICHM., Auk, 1899, p. 186 (new name for *P. similis* Salv.).

Pachyrhamphus similis SALV., Nov. Zoöl., 1895, p. 13 (n. Peru; Ecuador; type-locality, n. Peru, Chusgon); S. & F., 1899b, p. 16 (Rio Peripa).

Pachyrhamphus albogriseus, TACZ., 1877, p. 327 (Lechugal); B. & T., 1883, p. 559 (Chimbo); 1885, p. 93 (Mapoto); HART., 1898, p. 489 (Chimbo); GOODF., 1901, p. 710 (Archidona).

Pachyrhamphus albogriseus similis, HART., 1902, p. 609 (Chimbo; San Javier; Archidona).

Mindo, 4 ♀; Chongoncito, 1 ♀; Daule, 1 ♀; Guayaquil, 1 ♂; Puna Is., 1 ♂, 1 ♀; Punta Santa Ana, 1 ♂; Zamora, 4 ♂; below Oyacachi, 1 ♂; below San José, 1 ♀.

RANGE.—Chiefly Tropical Zone: the species, north Peru to Nicaragua; the race, north-central Peru, eastern and western Ecuador.

We have no Colombian specimens of this species. Compared with one male and two females in the Dwight collection from Costa Rica, Ecuadorean birds are slightly smaller; males have less white on the tail and on the forehead and no pale grayish nuchal collar; while Ecuadorean females have the throat white, the back and crown darker. I see no difference between males from eastern and from western Ecuador.

(3232) ***Pachyrhamphus marginatus subsp.***

Todus marginatus LICHT., Verz. Doubl., 1823, p. 51.

Pachyrhamphus atricapillus, GOODF., 1901, p. 710 (Archidona).

Pachyrhamphus marginatus, SCL., 1858a, p. 71 (Napo).

RANGE.—Tropical Zone: *P. m. marginatus*, "eastern and southeastern Brazil"; *P. m. nanus* Bangs and Penard, "northeastern Brazil, Guiana, Venezuela, upper Amazon and eastern Peru." (See Bangs and Penard, Bull. M. C. Z., 1921, p. 395.)

We have no specimens from Ecuador. The form occurring there is doubtless *P. m. nanus*.

(3236) ***Lathria fuscocinerea* (Lafr.)**

Querula fusco-cinerea LAFR., Rev. Zoöl., 1843, p. 291 (Colombia).

Lipaugus fusco-cinereus, SCL., 1858a, p. 71 (Napo).

Lathria fuscocinerea, S. & F., 1899b, p. 15 (Pun); GOODF., 1901, p. 711 (Baeza); L. & R., 1922, p. 75 (Baeza).

Lathria fuscocinerea guayaquilensis RIDGW., Proc. Biol. Soc. Wash., XIX, 1906, p. 120 ("Guayaquil," error, = eastern Andes, Ec.).

Above Loja, 1 ♂, 1 ♀; above Baeza, 9 ♂, 6 ♀; upper Sumaco, 3 ♂, 4 ♀.

RANGE.—Humid Temperate Zone of eastern Ecuador and of all three Andean ranges in Colombia; unknown from western Ecuador.

Comparison with an adequate series from Colombia shows that the Ecuadorean bird is not separable, the characters attributed to it being due to individual rather than to racial variation. This species appears to be a zonal representative of the much smaller but similarly colored *L. cinerea*. The type of "*guayaquilensis*" was contained in a collection secured in Guayaquil, hence the error in assuming that it came from western Ecuador.

(3238) *Lathria cinerea cinerea* (Vieill.)

Ampelis cinerea VIEILL., Nouv. Dict. d'Hist. Nat., VIII, 1817, p. 162 (Cayenne).

Lathria cinerea, GOODF., 1901, p. 711 (mouth of Rio Coca; Suyano, Rio Napo).

Rio Suno, 3 ♂.

RANGE.—Tropical Zone: the species, eastern Brazil and Guiana to Bolivia and Colombia (*L. c. plumbea* Licht., Bahia to Bolivia).

(3240) *Lathria unirufa castaneotincta* Hart.

Lathria unirufus castaneotinctus HART., Nov. Zoöl., 1902, p. 610 (Rio Durango, Paramba, n. w. Ec.).

Lathria unirufa, HART., 1898, p. 490 (Cachavi).

RANGE.—Tropical Zone: the species, northwestern Ecuador to Mexico; the race, northwestern Ecuador to Nicaragua.

We have specimens from western Colombia, but none from Ecuador.

(3241) *Lathria subalaris* (Scl.).

Lipaugus subalaris SCL., P. Z. S., 1861, p. 210 (Rio Napo).

Lathria subalaris, S. & F., 1899b, p. 15 (San José).

Rio Suno, 1 ♀; below San José, 5 ♀.

RANGE.—Tropical Zone, eastern Ecuador.

(3242) *Lathria cryptolopha cryptolopha* Scl. & Salv.

Lathria cryptolopha SCL. & SALV., P. Z. S., 1877, p. 522 (Monji, Ec.).

Zamora, 1 ♂; Sabanilla, 2 ♂.

RANGE.—Subtropical Zone: the species, eastern and western Ecuador and eastern Colombia; the race, eastern Colombia and eastern Ecuador.

(3242a) *Lathria cryptolopha mindoensis* Hellm. & Seil.

Lathria cryptolopha mindoensis HELLM. & SEIL., Verh. der Orn. Gesell. Bayern, XII, Heft. I, 1914, p. 89 (Mindo ?).

Mindo, 1.

RANGE.—Known only from the type-locality.

A single specimen has the crest black and agrees closely with a male from Sabanilla, eastern Ecuador, but has the base of the black crest-feathers white instead of reddish chestnut, and thus resembles the type of this race.

(3243) *Laniocera hypopyrrha* (Vieill.)

Ampelis hypopyrrha VIEILL., Nouv. Dict. d'Hist. Nat., VIII, 1817, p. 164 ("Guyane").

Aulia hypopyrrha, SCL., Cat. Bds. B. M., XIV, 1888 (Sarayacu—Buckley).

RANGE.—Tropical Zone, eastern Brazil to upper Amazonia.

We have no specimens from Ecuador.

(3244) *Laniocera rufescens tertia* (Hart.)

Aulia tertia HART., Nov. Zoöl., 1902, p. 609 (Bulón, Ec.).

RANGE.—Tropical Zone; the species, northwestern Ecuador to Guatemala.

We have no Ecuadorean specimens but consideration of the description of *tertia* and the remarks concerning its relationships to *rufescens*, in connection with nine specimens of the latter from Panama and Nicaragua, indicate that the two are not only very closely related, but that, possibly, the characters attributed to *tertia* are due to age and individual variation.

(3246) *Lipaugus simplex simplex* (Licht.)

Muscicapa simplex LICHT., Verz. Doubl., 1823, p. 53 (Bahia).

Lipaugus simplex, S. & F., 1899b, p. 15 (Valle del Rio Santiago).

RANGE.—Tropical Zone: the species, eastern Brazil and Guiana to upper Amazonia. (*L. s. frederici* Bangs & Penard, Surinam.)

We have no specimens from Ecuador.

(3248) *Lipaugus holerythrus rosenbergi* Hart.

Lipaugus holerythrus rosenbergi HART., Bull. B. O. C., XVI, 1905, p. 12 (Rio Dagua, w. Col.).

Lipaugus holerythrus, HART., 1898, p. 489 (Cachaví).

RANGE.—Tropical Zone: the species, northwestern Ecuador to Guatemala; the race, northwestern Ecuador and western Colombia.

We have a specimen from western Colombia but none from Ecuador.

(3250) *Attila braziliensis parambæ* Hart.

Attila braziliensis parambæ HART., Bull. B. O. C., XI, 1901, p. 39 (Paramba, n. w. Ec.); Nov. Zoöl., 1902, p. 610 (Paramba; San Javier; Pambilar, Ec.).

Below Mindo, 1 ♂, 1 ?.

RANGE.—Chiefly Tropical Zone: the species, Brazil to Mexico; the race, western Colombia and northwestern Ecuador.

I have not material properly to work out the geographic relationships of this form; of true *braziliensis* we lack specimens. The Trinidad form, *wighti* Cherrie, of which we have the type, differs from *parambæ* chiefly in having the back and tail somewhat browner, the wing-coverts tipped with whitish. Specimens from the adjoining part of Venezuela at Cristobal Colon, however, are nearer *citreopygus*. The species doubtless occurs in, but has not been recorded from, eastern Ecuador.

(3264) *Attila torridus* Scl.

Attila torridus SCL., P. Z. S., 1860, p. 280 (Babahoyo, Ec.); S. & F., 1899b, p. 15 (Vinces; Rio Peripa); HART., 1902, p. 611 (San Javier; Pambilar).

Esmeraldas, 1 ♂; Manaví, 1 ♂, 1 ♀; Daule, 1 ♂; La Chonta, 1 ♂, 1 ♀; Alamor, 2 ♂.

RANGE.—Tropical Zone, western Ecuador.

A very distinct species, most nearly related to *Attila thamnophiloides* of Amazonia, of which it may be the Pacific coast representative.

(3268) *Phœnicercus nigricollis* Swains.

Phœnicercus nigricollis SWAINS., Faun. Bor.-Am., II, 1831, p. 491 (e. Peru); ALLEN, 1889, p. 74 (Napo).

'Napo,' 1.

RANGE.—Tropical Zone, upper Amazonia.

The upper Amazon representative of the Guianan *P. carnifex*.

(3270) *Rupicola peruviana æquatorialis* Tacz.

Rupicola peruviana æquatorialis TACZ., List of Types in the Warsaw Museum, Warsaw, 1889, p. 19 (Machay, Ec.). Based on Tacz. & Berl., P. Z. S., 1885, p. 93.

Rupicola peruviana JARD., 1855, p. 118, part (toward base of the East Andes); SCL., 1858a, p. 71 (Napo); B. & T., 1885, p. 93 (Mapoto; Machay); S. & F., 1899b, p. 18 (Cuchipamba; Valle del Rio Zamora; Valle del Rio Santiago; San José); GOODF., 1901, p. 711 (below Baeza, 4,000 ft.); L. & R., 1922, p. 75 (Baeza).

Rupicola peruviana aurea CHAPM., Bull. A. M. N. H., XXXI, 1912, p. 156 (Salento, Central Andes, Col.).

Zamora, 4 ♂, 3 ♀; Macas region, 2 ♂, 1 ♀; Huilca, near Macas, 4 ♂, 1 ♀; Baeza, 6 ♂, 4 ♀; below Rio Sardinas, 1 ♀; below Oyacachi, 1 ♂, 1 ♀; lower Sumaco, 6 ♂, 2 ♀.

RANGE.—Subtropical Zone: the species, Bolivia through eastern Peru, eastern Ecuador to eastern and central Colombia; the race, northeastern Peru and northward.

The receipt of further specimens from central Peru (Vitoc Valley) confirms my expressed belief¹ that *peruviana* Latham was based on a specimen from that region, and I therefore suggest the Chanchamayo district as the type-locality for this form. Specimens from northern Peru northward represent but one race, for which *æquatorialis* Tacz. long antedates *aurea* Chapm. These additional specimens of *peruviana peruviana* lead me to change my opinion concerning the distinctness of the Bolivian race, *saturata* Cab. & Heine. In their more intense coloration, particularly of the crest, Urubamba Valley birds show an obvious approach to *saturata*, indeed, seem nearer to it than to true *peruviana* while southeastern Peruvian birds agree with Bolivian ones.

I should now therefore record three races of *R. peruviana* as follows:

Exposed portion of inner wing-quills wholly gray.

Deeper in color *R. p. saturata*

Subtropical Zone of Bolivia north to Urubamba Valley,
Peru.

Paler in color *R. p. peruviana*

Subtropical Zone, central Peru.

Exposed portion of inner wing-quills not wholly gray *R. p. æquatorialis*

Subtropical Zone: northern Peru, eastern Ecuador,
East and Central Andes, Colombia.

(3272) *Rupicola sanguinolenta* Gould

Rupicola sanguinolenta GOULD, P. Z. S., 1859, p. 100 ("Quito"); SCL., 1860c, p. 91 (Nanegal); ALLEN, 1889, p. 74 (Milligalli); HART., 1898, p. 490 (Milligalli); S. & F., 1899b, p. 17 (Intac; Gualaia); GOODF., 1901, p. 712 (Gualaia; Milligalli); MEN., 1911, p. 62 (San Nicolas).

Rupicola peruviana, JARD., 1855, p. 118 (part—not above 4,000 ft., in West Andes).

¹ Bull. U. S. Nat. Mus., No. 117, 1921, p. 100.

Rupicola peruviana sanguinolenta, L. & R., 1922, p. 75 (Nanegal; Milligalli).

'Gualea,' 3 ♂; Milligalli, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone, northwestern Ecuador and western Colombia.

Although obviously representing *Rupicola peruviana* the most southern form of which it closely approaches, the two birds are not known to intergrade. The female differs more from that of *peruviana* than does the male. The species has not as yet been found in southwestern Ecuador, but in spite of years of collecting by native professional bird-hunters, it is still locally common in northwestern Ecuador.

(3278) *Ampelioides tschudii* (Gray)

Ampelis cincta TSCH. (nec KUHL, 1820), Wieg. Arch. für Naturg., 1843, p. 385 ("Hab. in sylvis Pangoë" Peru) = *Cotinga tschudii* GRAY, Gen. Bds., 1, 1846, p. 279. See Hellm., Verh. der Orn. Gesell., Bayern, XIII, 1917, p. 109.

Ampelion cinctus, SCL., 1860a, p. 67 (Pallatanga); 1860c, p. 89 (Nanegal); MEN., 1911, p. 64 (Gualea); L. & R., 1922, p. 76 (road to Nanegal).

Ampelio cinctus, GOODF., 1901, p. 714 (Santo Domingo).

'Gualea,' 2 ♂, 1 ♀; Salvias, 2 ♂, 2 ♀; Las Piñas, 1 ♂; Zamora, 1 ♀; below Rio Sardinias, 1 ♂, 1 ♀; near Macas, 1 ♀.

RANGE.—Subtropical Zone, Peru, eastern and western Ecuador and Colombia.

A series of twenty-four specimens from northern Peru to Colombia presents no geographic variation. The character of black tips to the greater wing-coverts is individual and may be present or absent in males from the same locality.

(3277) *Euchlornis arcuata* (Lafr.)

Ampelis arcuata LAFR., Rev. Zoöl., 1843, p. 98 (Colombia).

Cotinga arcuata, JARD., 1849, p. 44 (cold region, forest w. side Pichincha).

Laniisoma arcuatum, SCL., 1854, p. 114 (Quijos).

Ampelion arcuatus, SCL., 1860c, p. 89 (above Puellaro); 1858c, p. 553 (Matos); L. & R., 1922, p. 75 (below Calacali; s. w. Mojanda; road to Gualea).

Ampelio arcuatus, B. & T., 1885, p. 93 (San Rafael); GOODF., 1901, p. 713 (Mindo; Gualea; Baeza).

Pipreola arcuata, S. & F., 1899b, p. 17 (Frutillas).

Nono, 1 ♀; above Gualea, 1 ♂; above Mindo, 1 ♂; above Nanegal, 1 ♂; below Oyacachi, 1 ♂; upper Sumaco, 1 ♂.

RANGE.—Upper Subtropical and humid Temperate Zones, Bolivia to western Venezuela.

Apparently exhibits no geographic variation throughout its wide range.

(3279) *Euchlornis riefferi riefferi* (Boiss.)

Ampelis riefferi BOISS., Rev. Zoöl., 1840, p. 3 (Bogotá).

Pipreola riefferi, SCL., 1854, p. 113 (Quijos); S. & F., 1899, p. 17 (Pun).

Sabanilla, 1 ♂, 1 ♀; Macas region, 1 ♀; Baeza, 1 ♂, 1 ♀; below Oyacachi, 1 ♀; upper Sumaco, 4 ♂, 3 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to Venezuela; the race, eastern Ecuador and eastern Colombia.

Eastern Ecuadorean specimens agree with topotypes.

(3279a) *Euchlornis riefferi occidentalis* Chapm.

Euchlornis riefferi occidentalis CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 630 (San Antonio, Col.).

Pipreola riefferi, GOODF., 1901, p. 713 (Mindo).

Pipreola melanolaema, SCL., 1860a, p. 67 (Chillanes); S. & F., 1899b, p. 17 (Nanegal); MEN., 1911, p. 63 (Gualea); L. & R., 1922, p. 76 (roads to Nanegal and Gualea, near Mindo).

'Gualea,' 1 ♂, 1 ♀; Verdecocha, 1 ♀; Salvias, 1 ♀.

RANGE.—Subtropical Zone; western Colombia and western Ecuador.

The Gualea male is typical of this race to which, doubtless, all western Ecuadorean specimens should be referred.

(3283a) *Euchlornis frontalis squamipectus* Chapm.

Euchlornis frontalis squamipectus CHAPM., Amer. Mus. Novit. No. 187, 1925, p. 5 (Zamora, Ec.).

Pipreola frontalis, SCL., Cat. Bds. B. M., XIV, 1888, p. 379 (Pindo).

Near Macas, 1 ♂; Zamora, 5 ♀.

Subspecific Characters.—Similar to *E. f. frontalis* Scl. of Bolivia and southeastern Peru, but wings and tail shorter, bill larger; the male darker above, particularly on the crown, forehead, and lores; the red on the throat less extensive; the flanks more definitely barred. Female quite different from the female of *frontalis frontalis*, the entire underparts from bill to under tail-coverts, including the chin and breast, barred with green; yellow, in adults, spreading farther back on forehead and more mixed with green.

RANGE.—Eastern Ecuador (and northeastern Peru ?).

(3284) *Euchlornis sclateri sclateri* Corn.

Euchlornis sclateri CORN., Contrib. Ornith., 1852, p. 133, pl. ci (Quixos, Ec.).

Pipreola sclateri, SCL., 1854, p. 113 (Quijos); ALLEN, 1889, p. 74 (Rio Napo).

Rio Suno, 4 ♂; below San José, 3 ♂, 2 ♀.

RANGE.—Tropical Zone: the species, central Peru to eastern Ecuador; the race, eastern Ecuador.

In describing a race of this species from eastern Peru, Zimmer¹ comments on the indefiniteness of Cornalia's type-locality and proposes for it Quixos, eastern Ecuador, whence the species was recorded by Sclater (*loc. cit.*) a few years later. In this connection it may be added that three years before he described *sclateri*, Cornalia described *Microhopias quixensis* from this locality.

The seven males above recorded are uniform in coloration, but we have also two from the Lawrence collection labeled by him simply "Ecuador," which have the breast flame-scarlet or grenadine-red, the throat basally yellow, tipped with the breast color. If this species had been recorded from western Ecuador I should conclude that these two specimens represented a Pacific slope form, but in the absence of a definite locality it seems wise only to mention them here with a hope that the future may throw some light on their characters.

(3287) *Euchlornis lubomirskii* (Tacz.)

Pipreola lubomirskii Tacz., P. Z. S., 1879, p. 236, pl. xxii (Tambillo, Peru); GOODF., 1901, p. 713 (Baeza).

Below Oyacachi, 1 ♀.

RANGE.—Subtropical Zone, northern Peru, through eastern Ecuador to southern Colombia.

We have also specimens from northern Peru and southern Colombia.

(3288) *Euchlornis jucunda* (Scl.)

Pipreola jucunda SCL., P. Z. S., 1860, p. 89, pl. clx (Cachi-Llacta, Ec.); B. & T., 1884, p. 298 (Cayandede); GOODF., 1901, p. 713 (Nanegal); MEN., 1911, p. 63 (Guala).

? *Pipreola formosa*, SCL., Cat. Bds. B. M., XIV, 1888, p. 379 (Napó, ♀).

Euchlornis jucunda, L. & R., 1922, p. 76 (Guala; Mindo).

'Quito', 1 ♂.

RANGE.—Subtropical Zone, western (and eastern ?) Ecuador.

The relations of this species to *E. formosa* of Venezuela are obvious. Possibly an intermediate between the two may be found in eastern

¹ *Euchlornis sclateri pallidigula* Zimmer, Field Mus. Pub., No. 218, 1924, p. 60.

Ecuador and eastern Colombia, to which the female from Napo, identified by Sclater as *Pipreola formosa*, should be referred.

I have not seen an authentic female of this species. The specimen recorded by me from southwestern Colombia¹ as such seems rather to be a female of some form of *E. aureipectus*.

(3293) **Cotinga cayana** (Linn.)

Ampelis cayana LINN., Syst. Nat., I, 1766, p. 298 ("Cayana").

Cotinga cayana, SCL., Cat. Bds. B. M., XIV, 1888, p. 385 (Napo; Sarayacu).

RANGE.—Tropical Zone; Guiana to upper Amazonia.

We have no Ecuadorean specimens.

(3294) **Cotinga nattererii** (Boiss.)

Ampelis nattererii BOISS., Rev. Zoöl., 1840, p. 2 ("Bogotá" = forests of the lower Magdalena River).

Esmeraldas, 1 ♀.

RANGE.—Tropical Zone; Colombian-Pacific Fauna, northwestern Ecuador to eastern Panama.

This appears to be the only specimen of this species recorded from Ecuador.

(3295) **Cotinga maynana** (Linn.)

Ampelis maynana LINN., Syst. Nat., I, 1766, p. 298 ("Habitat in Mayanensi").

Cotinga maynana, SCL., 1858, p. 71 (Napo); GOODF., 1901, p. 714 (upper Napo).

Cotinga mayana, ALLEN, 1889, p. 74 (Napo).

'Napo,' 1 ♂; below San José de Sumaco, 1 ♂.

RANGE.—Tropical Zone; eastern Ecuador and northeastern Peru.

The close resemblance between the female of this species and that of *C. nattererii* suggests that the two species are representative forms.

(3296) **Cotinga porphyrolæma** Scl. & Dev.

Cotinga porphyrolæma SCL. & DEV., Rev. Zoöl., 1852, p. 226 (Sarayacu, Rio Ucayali, Peru); Cat. Bds. B. M., XIV, 1888, p. 386 (Sarayacu, Ec.).

RANGE.—Tropical Zone; upper Amazonia.

We have no Ecuadorean specimens.

¹ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 499.

(3300) *Carpodectes hopkei* Berl.

Carpodectes hopkei BERL., Orn. Monat., V, 1897, p. 174 (San José, Col.); HART., 1902, p. 611 (Ventana).

RANGE.—Tropical Zone; northwestern Ecuador and western Colombia.

We have specimens from Colombia but none from Ecuador, whence it is known only from Hartert's record.

(3302) *Heliochera rubrocristata* (d'Orb. & Lafr.)

Ampelis rubrocristata D'ORB. & LAFR., Syn. Av., 1837, p. 39 (Yungas, Bol.).

Carpornis rubrocristata, JARD., 1856, p. 91 (e. Cordillera).

Ampelion rubro-cristatus, SCL., 1858c, p. 553 (Matos; Titiacun).

Ampelion rubrocristatus, SCL., 1860b, p. 78 (Lloa); 1860c, p. 89 (Calacali; above Puellaro).

Heliochera rubrocristata, B. & T., 1884, p. 298 (Cechce); 1885, p. 93 (San Rafael); HART., 1898, p. 490 (Cayambe); S. & F., 1899b, p. 17 (Huacha; Pun; Chaupi; Pelagallo; Frutillas; Lloa; Pichincha; Papallacta); GOODF., 1901, p. 714 (West and East Andes, from 10,000–12,000 ft.); MEN., 1911, p. 64 (Frutillas; Chimbo); L. & R., 1922, p. 76 (below Lloa).

Chambo (9,500 ft.); Hacienda Garzon (Rhoads).

Yanacocha, 1 ♂, 2 ♀; Chical, 1 ♀; Taraguacocha, 2 ♂, 2 ♀; San Bartolo, 1 ♂; Salvias, 1 ♂; Oyacachi, 2 ♀; Papallacta, 1 ♂, 1 ♀; upper Sumaco, 1 ♂, 3 ♀.

RANGE.—Temperate Zone: Bolivia to Venezuela; eastern and western Ecuador and northwestern Peru. (Fig. 18, p. 115.)

This is one of the most characteristic species of the humid Temperate Zone. We have no specimens from Bolivia, but I can detect no racial variation in a large series from southeastern Peru to western Venezuela.

The presence of *Heliochera rufaxilla* in Peru and in Colombia, and the absence of all records of it from Ecuador, is noteworthy.

(3306) *Iodopleura isabellæ* Parzud.

Iodopleura isabellæ PARZUD., Rev. Zoöl., 1847, p. 186 (Rio Negro, n. Brazil); SCL., Cat. Bds. B. M., XIV, 1888, p. 393 (Rio Cotopaza).

Napo, 1 ♂, 1 ♀.

RANGE.—Tropical Zone; lower Amazonia to eastern Peru, eastern Ecuador and eastern Colombia.

Three specimens from Barrigon, near Villavicencio, in the eastern Bogotá region of Colombia (whence the species has apparently not before been recorded) agree with two from the lower Amazon.

(3310) *Querula purpurata* (P. L. S. Müll.)

Muscicapa purpurata P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 169 (Cayenne).

Querula cruenta, SCL., Cat. Bds. B. M., XIV, 1888, p. 396 (Sarayacu); S. & F., 1899b, p. 18 (Rio Peripa).

Bucay (Rhoads).

Esmeraldas, 4 ♂, 1 ♀; Rio Suno, 2 ♂, 1 ♀.

RANGE.—Tropical Zone, Amazonia to Costa Rica, western Ecuador.

I find no racial variation in a large series of this species from throughout its range.

NOTE.—*Pyroderus*, recorded from Peru and Colombia, is as yet unknown from Ecuador.

(3315) *Cephalopterus ornatus* Geoff.

Cephalopterus ornatus GEOFF., Ann. Mus., XIII, 1809, p. 238, pl. 17 (Brazil); SCL., 1858a, p. 71 (Napo); B. & T., 1885, p. 94 (Mapoto); S. & F., 1899b, p. 18 (Valle de Mendez; San José); GOODF., 1901, p. 715 (Rio Cosanga, below Baeza).

Zamora, 3 ♀, 1 ?; Macas region, 2 ♂, 2 ♀; Rio Suno, 3 ♂, 3 ♀.

RANGE.—Tropical Zone; Amazonia and Guiana from Bolivia to eastern Colombia.

The breast-pendant in adult males measures from 140 to 160 mm.

(3316) *Cephalopterus penduliger* Scl.

Cephalopterus penduliger SCL., Ibis, 1859, p. 114, pl. iii (Pallatanga, Ec.); 1859a, p. 142 (Pallatanga); 1860a, p. 67 (Pallatanga); 1860c, p. 92 (Nanegal); 1860f, p. 429 (Pallatanga); B. & T., 1883, p. 560 (Chimbo); 1884, p. 490 (Campamento Capal Grande, above Chimbo, 3,000 ft.; Paramba); S. & F., 1899b, p. 18 (Rio Peripa); GOODF., 1901, p. 715 (Santo Domingo); MEN., 1911, p. 65 (Santo Domingo); L. & R., 1922, p. 76 (Rio Blanco, below Mindo; Napa road to Santo Domingo, 3,800 ft.).

Rio de Oro, Manaví, 1 ♂; La Chonta, 1 ♀.

RANGE.—Tropical and Subtropical Zones; western Ecuador and western Colombia.

The increase in the length of the breast-pendant, which is said to distinguish eastern Ecuadorean from Amazonian specimens of *C. ornatus*, reaches its maximum in this species, in which the pendant measures as much as 350 mm. (Lönnerberg and Rendahl, *loc. cit.*).

(3318) *Gymnoderus foetidus* (Linn.)

Gracula foetida LINN., Syst. Nat., I, 1766, p. 164 (Guiana).

Gymnoderus foetidus, SCL., Cat. Bds. B. M., XIV, 1888, p. 402 (Sarayacu—Buckley); GOODF., 1901, p. 714, pl. xiv (Rio Coca).

RANGE.—Tropical Zone; Guianas and Amazonia.

We have no Ecuadorean specimens.

FAMILY PHYTOTOMIDÆ. PLANT-CUTTERS

(3325) *Phytotoma raimondii* Tacz.

Phytotoma raimondii TACZ., 1883, p. 71, pl. xvii (Tumbez, Peru).

RANGE.—Pacific coast from at least the Province of La Libertad, Peru, north to Tumbez.

This species is included here on the basis of its occurrence at Tumbez. Our only specimens are from Viru, Peru.

Judging from the close resemblance between the females as well as the males, this species represents *P. angustirostris* of Bolivia and northern Argentina.

FAMILY HIRUNDINIDÆ. SWALLOWS, MARTINS

(3327) *Iridoprocne albiventris* (Bodd.)

Hirundo albiventris BODD., Tabl. Pl. Enl., 1783, p. 32 (Cayenne).

Hirundo æquatorialis LAWR., Ann. Lyc. Nat. Hist. N. Y., 1867, p. 400 ("Quito" = Napo region ?).

"Quito," 1.

RANGE.—Tropical Zone, southern Brazil to the Caribbean.

Doubtless common in eastern Ecuador, since we have a dozen specimens from southeastern Colombia, but our only Ecuadorean specimen (which is also the basis of the only Ecuadorean record) is Lawrence's type of *Hirundo æquatorialis*, said to have come from Quito, but which, if it is Ecuadorean, was doubtless secured in the Napo region.

(3329) *Iridoprocne albilinea* (Lawr.)

Petrochelidon albilinea LAWR., Ann. Lyc. Nat. Hist. N. Y., VIII, 1863, p. 2 (Panama).

RANGE.—Tropical Zone; Mexico to Peru.

Recorded from "Ecuador" by Brabourne and Chubb and from Chepen, Peru, by Taczanowski (Orn. Per., I, p. 240), but I have seen no specimens from these countries.

(3331) *Hirundo erythrogaster* (Bodd.)

Hirundo erythrogaster Bodd., Tabl. Pl. Enl., 1783, p. 45 (Cayenne); L. & R., 1922, p. 76 (Mt. Corazon, 14,500 ft., Oct. 9, 1 ♂).

Bucay, 2 ♂ (Nov. 17).

RANGE.—Breeds in North America, winters as far south as Paraguay and Argentina.

We have only two specimens from Ecuador, but from the coast of Peru we have twenty-two taken between January 22 and April 10.

(3335) *Progne chalybea chalybea* (Gmel.)

Hirundo chalybea GMEL., Syst. Nat., I, 1789, p. 1026 (Cayenne).

Progne dominicensis, SCL., 1860e, p. 292 (Esmeraldas).

Progne [sic] *chalybea*, S. & F., 1899b, p. 10 (Vinces; Balzar).

Bucay, 4 ♂, 1 ♀; Santa Elena, 1 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, Paraguay to Mexico; the race, Brazil to Mexico.

(3336a) *Phæoprogne tapera immaculata* Chapm.

Phæoprogne tapera immaculata CHAPM., Bull. A. M. N. H., XXXI, 1912, p. 156 (Chicoral, Col.); *ibid.*, XXXVI, 1917, p. 502 (crit.).

? *Progne tapera*, TACZ., 1877, p. 320 (Tumbez; Santa Luzia).

Duran, 4 ♂, 1 ♀. Peru: Pílares, 2 ♂, 1 ♀, 1 ?; Lamor, 1 ♂.

RANGE.—Tropical Zone: the species, Paraguay to the Caribbean; the race, north of the Amazon.

Three of these specimens show a faint trace of spots on the breast.

(3337) *Atticora fasciata* (Gmel.)

Hirundo fasciata GMEL., Syst. Nat. I, 1879, p. 1022 (Cayenne).

Atticora fasciata, SHARPE, Cat. Bds. B. M., X, 1885, p. 184 ("Ecuador").

RANGE.—Tropical Zone; Bolivia to Guiana.

The only record for Ecuador appears to be a bird in the British Museum recorded by Sharpe.

(3338) *Orochelidon murina* (Cass.)

Petrochelidon murina CASS., Proc. Acad. Nat. Sci. Phila., 1853, p. 370 (Ecuador); SCL., 1860b, p. 74 (Quito).

Atticora murina, B. & T., 1884, p. 287 (Ticsan); HART., 1898, p. 480 (Cayambe, 9,000 ft.); MEN., 1911, p. 65 (Tumbaco).

Atticora cinerea, S. & F., 1899a, p. 11 (Pun; Laguna di Kingora; Cañar; Quito; Lloa); GOODF., 1901, p. 316 (Nanegal).

Above Chambo (10,300 ft.); Hacienda Garzon (Rhoads).

El Corazon, 1 ♂, 1 ♀; Valle de Cumbaya, 1 ♂, 1 ♀; Chimborazo, 2 ♂; Pichincha, 4 ♂, 1 ♀; Quito, 1 ♀.

RANGE.—Temperate Zone; southern Peru to northern Colombia.

In a series of thirty-two specimens taken from throughout the range of the species, and including seven from near Bogotá, I detect no racial variation. Immature birds are paler below and have less deeply forked tails.

(3340a) *Neochelidon tibialis minimus* Chapm.

Neochelidon tibialis minimus CHAPM., Am. Mus. Novit., No. 138, 1924, p. 9 (Juntas de Tamaná, w. Col.).

Atticora tibialis, B. & T., 1883, p. 543 (Chimbo); HART., 1898, p. 480 (Chimbo); GOODF., 1901, p. 316 (Santo Domingo); MEN., 1911, p. 66 (Santo Domingo).

RANGE.—Tropical Zone; western Ecuador to Panama.

Our specimens are from western Colombia and Panama, but I have examined specimens from Sapayo in the Museum of Comparative Zoölogy.

(3340b) *Neochelidon griseiventris* Chapm.

Neochelidon griseiventris CHAPM., Amer. Mus. Novit., No. 138, 1924, p. 9 (Candamo, Peru).

Zamora, 1 ♂.

Specific Characters.—Resembling *Neochelidon tibialis tibialis* (Cass.) in size, but underparts mouse-gray rather than olive-brown; upperparts with much more pronounced metallic reflections.

RANGE.—Tropical Zone; eastern Peru and eastern Ecuador and eastward.

The somewhat complicated history of this species and its allies was presented in connection with its description.

(3342) *Pygochelidon cyanoleuca* (Vieill.)

Hirundo cyanoleuca VIEILL., Nouv. Dict. d'Hist. Nat., 1817, p. 509 (Paraguay).

Petrochelidon cyanoleuca, SCL., 1858b, p. 459 (Cuenca); 1858c, p. 551 (Riobamba); 1859a, p. 138 (Pallatanga); 1860b (Quito); 1860c, p. 85 (Nanegal; Perucho).

Atticora cyanoleuca, B. & T., 1883, p. 543 (Chimbo); HART., 1898, p. 480 (Cayambe; Ibarra); S. & F., 1899a, p. 11 (Gualaquiza; La Concepcion; Otavalo; Valle de Chillo; Sigsig; Cuenca; Quito; Niebli); GOODF., 1901, p. 316 (many places, 600–10,000 ft.); MEN., 1911, p. 66 (Nono; Tumbaco; Chambo).

Junction Chanchan and Chiguancay; Huigra; Hacienda Garzon; Cumbaya (Rhoads).

Rio de Oro, 3 ♂; Bucay, 4 ♂, 1 ♀; vicinity of Quito, 6 ♂, 1 ♀; Pomasqui, 1 ♀; Mocha, 1 ♂; La Chonta, 2 ♂; Alamor, 3 ♂, 1 ♀; Cebollal, 4 ♂; Zamora, 1 ♀; Baeza, 1 ♂, 2 ♀. Peru: Palambla, 4 ♂, 2 ♀; Huancabamba, 1 ♂; Chaupe, 4 ♂, 2 ♀; Tamborapa, 2 ♂, 1 ♀; San Ignacio, 1 ♂.

RANGE.—Chiefly Subtropical Zone, from Costa Rica to Bolivia and locally, Guiana and mountains of southeastern Brazil.

With some other Subtropical Zone species, this Swallow descends to comparatively low altitudes in western Ecuador, whence three of our specimens are from the coast of Manaví. It also reached the tableland near Quito, perhaps by ascending the Guallabamba. The difference in size between specimens from low and high altitudes indicates that the birds found in the latter are residents, not migrants.

Thus, three males from Manaví measure, wing 86 to 90 mm., tail 43 to 45.5 mm., while an equal number from near Quito measure, wing 97 to 98 mm., tail 48 to 51 mm.

(3342a) *Pygochelidon patagonica* (peruviana Chapm. ?)

Pygochelidon patagonica peruviana CHAPM., Am. Mus. Novit., No. 30, 1922, p. 7 (Huaral, Peru).

Jambeli, 2♂ juv., 1♀ juv.

RANGE.—The species, southern South America from Tierra del Fuego to northern Argentina and northern Chile, north through eastern Peru to the upper Amazon (Nauta) and Rio Chinchipe in northern Peru (? Panama).

Since my study of the distribution of the birds of this genus we have continued to accumulate material, particularly from that part of its range in southwestern Ecuador and northwestern Peru, where we may hope to learn something of the relations of *peruviana* to *cyanoleuca*.

The belief expressed in the paper referred to, that *cyanoleuca* and *patagonica* are specifically distinct, finds additional support in a comparison of their immature plumages. These are more unlike than those of the adult. At this age *cyanoleuca* (twenty-two specimens) has a buffy band across the breast, and traces of this color may appear elsewhere on the underparts, while the head and back always show more or less dark bluish reflections. The juvenal of *patagonica* (eighteen specimens), on the other hand, rarely has buff on the breast; the head approaches fuscous, usually without reflections. As in the adult, young *patagonica* differs further from *cyanoleuca* in the paler lower wing-coverts and sides, and the narrow grayish edging on the outer vane of the outer rectrix. These differences make it easier to distinguish the two species in juvenal than in adult plumage. I therefore refer three birds collected by myself and O'Connell on Jambeli Island in July, 1922, to *patagonica*. All are in the midst of the postjuvenal molt, and while there is no doubt of their specific identity, the large size of one, with fully grown outer primaries (wing 101 mm.), the basally white lower tail-coverts shown by all three, in connection with specimens recently

collected in northern Peru and in Panama, raises a question as to whether they are *patagonica peruviana* or *patagonica patagonica*. The northern Peruvian specimens referred to were taken by Watkins at Perico, on the Rio Chinchipe (July 20) and San Ignacio (July 2). They include four juvenal and two adult specimens, the latter referable to *patagonica patagonica*, which, it will be remembered, has already been recorded from Nauta and Yurimaguas in northern Peru (see Hartert, Nov. Zoöl., XVI, p. 169). From San Ignacio we also have a wholly typical adult male of *Pygochelidon cyanoleuca* taken on the same day (July 2) as the adult of *patagonica*. San Ignacio is in the arid tropics at the edge of the Subtropical Zone and is thus so situated that both species might be found associated.

Even more surprising and inexplicable than these Amazonian records of a Patagonian species is its apparent occurrence in Panama! Specimens from the Subtropical Zone of western Panama and Costa Rica are typical *cyanoleuca*, but an adult male taken by J. P. Chapin, at Juan Mina, Rio Chagres, Panama, July 17, 1923, while a member of Charles Rogers' Princeton Expedition, is in size, color, and pattern typical of *patagonica*.

Since the above was written, we have received from Venezuela a wholly typical specimen of *patagonica* (♂, wing 104 mm.) taken by Tate at Cumana, May 23, 1925, and an equally typical specimen of *cyanoleuca* taken at San Antonio, April 27 (♂, wing 89 mm.).

Unless these birds are migrants in winter quarters, I am unable to explain the occurrence of this South Temperate Zone bird in the Tropical Zone. That it is represented by *P. cyanoleuca* in the Subtropical Zone seems to be beyond question. That it is specifically distinct from that species is indicated by our material. The records of true *patagonica* from Cosnipata, La Merced, Yurimaguas, Nauta, Perico, and San Ignacio definitely establish its regular occurrence in the Tropical Zone of Peru and it obviously also goes as far north as Panama and Venezuela.

(3346a) ***Petrochelidon rufocollaris æquatorialis* Chapm.**

Petrochelidon rufocollaris æquatorialis CHAPM., Amer. Mus. Novit., No. 138, 1924, p. 12 (Alamor, Ec.).

Alamor, 3 ♂, 1 ♀, 2 juv.; Guainche, 1 ♂; Pullango, 1 ♀ juv.

Subspecific Characters.—Most nearly related to *Petrochelidon rufocollaris rufocollaris* (Peale) of the coast of Peru, but smaller and with the auburn or chestnut areas of the lower parts and sides of the head deeper and more extensive. Specimens of both races in juvenal plumage differ from each other much as do adults.

RANGE.—The group, North Temperate to South Temperate Zone; the race, southwestern Ecuador.

(3347) *Stelgidopteryx ruficollis ruficollis* (Vieill.)

Hirundo ruficollis VIEILL., Nouv. Dict. d'Hist. Nat., XIV, 1817, p. 523 (Brazil).

Stelgidopteryx ruficollis, S. & F., 1899a, p. 11 (Valle del Zamora); GOODF., 1901, p. 316 (Archidona).

Stelgidopteryx ruficollis ruficollis, HELLM., Nov. Zoöl., XIII, 1906, p. 13 (Archidona).

Zamora, 2♂; Rio Suno, 1♀.

RANGE.—Tropical Zone: the species, Paraguay to Costa Rica; the race, Paraguay to Amazonia.

(3349) *Stelgidopteryx ruficollis uropygialis* (Lawr.)

Cotyle uropygialis LAWR., Ibis, 1863, p. 181 (Panama).

Cotyle flavigastra, SCL., 1860d, p. 274 (Babahoyo).

Cotyle ruficollis, SCL., 1860e, p. 292 (Esmeraldas).

Stelgidopteryx uropygialis, TACZ., 1877, p. 744 (Lechugal); B. & T., 1883, p. 543 (Chimbo); 1885, p. 75 (Yaguachi); S. & F., 1899a, p. 11 (Vinces); HART., 1898, p. 480 (Cachaví; Chimbo).

Bucay (Rhoads).

Esmeraldas, 3♂, 2♀; Daule, 1♂; Duran, 1♂; Naranjo, 1♂; Bucay, 1♂; Rio Jubones, 3♂, 1♀; Santa Rosa, 3♂, 2♀; Casanga, 1♂; Rio Pullango, 2♂.

RANGE.—Tropical Zone, southwestern Ecuador to Costa Rica.

FAMILY SYLVIIDÆ. GNATCATCHERS

(3359) *Polioptila bilineata* (Bonap.)

Culicivora bilineata BONAP., Consp. Av., I, 1850, p. 316 (Cartagena).

Polioptila bilineata, SCL., 1860d, p. 273 (Babahoyo); 1860e, p. 291 (Esmeraldas); B. & T., 1885, p. 71' (Yaguachi); S. & F., 1899a, p. 5 (Babahoyo; Savana de Guayaquil; Vinces; Balzar; Puntilla de Santa Elena); GOODF., 1901, p. 312 (near Santo Domingo).

Polioptila albilora TACZ., 1877, pp. 319, 750 (Tumbez).

Bucay (Rhoads).

Esmeraldas, 5♂, 4♀; Manaví, 4♂, 3♀; La Plata Is., 3♂, 3♀; Guayaquil, 2♂, 3♀; Duran, 4♂; Santa Elena, 2♂; Chongoncito, 4♂, 2♀; Chimbo, 1♂; Puna, 3♂, 1♀; Bucay, 1♂; Rio Jubones, 1♂; Portovelo, 4♂, 1♀; Casanga, 1♂; Pullango, 1♂. Peru: Tumbez, 1♂; Sullana, 5♂, 2♀; Lamor, 4♂, 3♀; Paletillas, 1♂, 2♀; Samate, 2♂; Chilaco, 1♂, 1♀; Palambla, 1♂.

RANGE.—Tropical Zone, from northwestern Peru to northern Colombia.

I have only a single topotypical specimen, an immature male, from Bonda, Santa Marta, with which, however, comparable Ecuadorean and Peruvian birds agree. Ten specimens from Marañón drainage

(Huancabamba and Perico) are apparently referable to *andina* Hellm., which, if this identification is correct, is evidently specifically distinct from *albilineata*. In the latter the female has the crown gray like the back, but in the bird which I call *andina* both sexes (according to the labels of Watkins, their collector) have the crown black, the male being distinguished from the female solely by the absence of the white superciliary. Of ten specimens, seven, all sexed as female (one being marked "ovaries slightly enlarged"), have the white superciliary as in the male of *bilineata*, while in the remaining three, sexed as males, the superciliary is absent and the lores are black. Hellmayr's type of *andina* was sexed by its collector as "female," but evidently assuming that the sexual differences in this species are the same as those in *bilineata*. Hellmayr changed the collector's determination and listed the bird as a male. He also listed two other adult males, but since he makes no comment on the absence in them of the superciliary. I conclude either that they were wrongly sexed or that my specimens are not true *andina*.

(3362) ***Polioptila schistaceigula* Hart.**

Polioptila schistaceigula HART., Bull. B. O. C., VII, 1898, p. xxx (Cachabí, n. w. Ec.); P. Z. S., 1898, p. 479 (Cachaví).

RANGE.—Tropical Zone, northwestern Ecuador to northwestern Colombia.

We have specimens from Colombia but none from Ecuador.

(2043) ***Ramphocænus melanurus trinitatis* Less.**

Ramphocænus trinitatis LESS., Rev. Zööl., II, 1839, p. 42 (Trinidad).

Ramphocænus albiventris, SCL., Ibis, 1883, p. 92 (Sarayacu only); Cat. Bds. B. M., XV, 1890, p. 261 (Sarayacu only).

Rio Suno, 1 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, southeastern Brazil to the upper Amazon and Venezuela; the race, Trinidad to eastern Ecuador.

Apparently not separable from Trinidad specimens.

In a paper presented before the American Ornithologists' Union in November, 1921, W. DeW. Miller showed that *Ramphocænus* and *Microbates* are Oscinine, most nearly allied to the Sylviidæ and perhaps deserving of rank as a separate family.¹

¹ Cf. Auk, 1922, p. 92; also Am. Mus. Novit., No. 140, 1924, p. 5.

(2046a) **Ramphocænus rufiventris rufiventris** (Bonap.)

Scolopacinus rufiventris BONAP., P. Z. S., 1837, p. 119 (Guatemala).

Ramphocænus rufiventris, B. & T., 1883, p. 565 (Chimbo); HART., 1898, p. 492 (Chimbo); S. & F., 1899b, p. 30 (Rio Peripa).

Esmeraldas, 2♂; Bucay, 1♂; Naranjo, 1♀; Portovelo, 2♂; Alamor, 1?

RANGE.—Tropical Zone: the species, Ecuador to Mexico east to Santa Marta, Col.; the race, southwestern Ecuador to southeastern Mexico.

Aside from a somewhat shorter bill, Ecuadorean birds agree with a Central American series, indicating that *R. r. griseodorsalis* is evidently not the western Colombian form but occurs chiefly east of the West Andes and is, perhaps, Subtropical rather than Tropical.

(2048) **Microbates cinereiventris cinereiventris** (Scl.)

Ramphocænus cinereiventris SCL., P. Z. S., 1855, p. 76, pl. lxxxvii ("Pasto," Col.; Hellmayr suggests Buenaventura); B. & T., 1883, p. 565 (Chimbo); HART., 1898, p. 492 (Cachaví); S. & F., 1899b, p. 30 (Rio Peripa).

Esmeraldas, 1♂; Pato de Pajaro, 1♀; Rio de Oro, 1♀; Naranjo, 2?; Chimbo, 2♀; Alamor, 1♂.

RANGE.—Tropical Zone: the species, southeastern Peru to Nicaragua; the race, southwestern Ecuador to eastern Panama.

These specimens agree with others from southwestern Colombia.

(2048a) **Microbates cinereiventris peruvianus** Chapm.

Microbates cinereiventris peruvianus CHAPM., Am. Mus. Novit., No. 86, 1923, p. 5 (La Pampa, s. e. Peru).

Ramphocænus cinereiventris, SCL., Cat. Bds. B. M., XV, 1890, p. 262 (Sarayacu). Rio Suno, 1♂; below San José, 2♀.

Subspecific Characters.—In its uniformly gray breast and abdomen, and absence of a postocular mark resembling *M. c. semitorquatus* (Lawr.) of Central America, but upperparts somewhat deeper, more rufescent than in that race; sides of the head deeper, ochraceous-tawny rather than ochraceous-buff; black malar-stripe and breast-streaks less pronounced.

RANGE.—Tropical Zone; southeastern Peru to eastern Ecuador.

Agree with toptotypical specimens. This race is very near *semitorquatus*.

FAMILY TROGLODYTIDÆ. WRENS

(3364) *Cinnicerthia unibrunnea* (Lafr.)

Limnornis unibrunnea LAFR., Rev. Zoöl., 1853, p. 59 (Ecuador).

Triothorus unibrunnea, JARD., 1855, p. 119 (temperate regions near Quito); 1856, p. 91 (e. Cordillera).

Cinnicerthia unibrunnea, SCL., 1858c, p. 550 (Matos); 1860b, p. 74 (Lloa; Guagua Pichincha); B. & T., 1885, p. 71 (Machay; Mapoto; San Rafael); S. & F., 1899a, p. 5 (Frutillas; Chinguil; Lloa); GOODF., 1901, p. 312 (West Andes, 10,000–12,000 ft.; Papallacta); MEN., 1911, p. 66 (Lloa); L. & R., 1922, p. 76 (Pichincha).

Cinnicerthia olivascens, GOODF., 1901, p. 312 (w. Pichincha, 8,000–9,000 ft.) (= *C. unibrunnea* juv., *fide* Hellm. in litt.).

? *Cinnicerthia unirufa*, L. & R., 1922, p. 76 (Pichincha).

Hacienda Garzon (Rhoads).

Pichincha, 7; Verdecocha, 2♂, 1?; above Loja, 1♂, 1?; Rio Upano, 7,000–10,000 ft., 10; above Baeza, 3♂, 1♀; Oyacachi, 4♂; Papallacta, 2♂; upper Sumaco, 2♂, 2♀.

RANGE.—Humid Temperate Zone; southern Ecuador north to the end of the Central Andes, Colombia.

Our series of forty-odd specimens from throughout the range of this species presents no appreciable geographic variation though East Andean birds may average darker. While apparently specifically distinct from *C. unirufa* of the East Andes of Colombia, *unibrunnea* appears to represent that species and I therefore venture to query the occurrence of *unirufa* on Pichincha as recorded by Lönnberg and Rendahl (*loc. cit.*).

(3366) *Cinnicerthia olivascens* Sharpe

Cinnicerthia olivascens SHARPE, Cat. Bds. B. M., VI, 1881, p. 184, pl. xi (Santa Elena, Col.).

Below Oyacachi, 1♂ juv.; upper Sumaco, 9♂, 4♀; lower Sumaco, 4♂; above Loja, 1♂, 1♀.

RANGE.—Subtropical and Temperate Zones of all three ranges of the Andes in Colombia and eastern Ecuador.

The sharply barred wings and tail of this species at once distinguish it from the Temperate Zone forms it apparently represents. Though not before recorded from Ecuador, its known occurrence in southeastern Colombia shows that it was to be expected there. There is much variation in the amount of rufous in the plumage, fully adult birds being evidently more rufescent than immature ones. In the latter the throat and breast are decidedly grayish.

(3376) *Heleodytes turdinus hypostictus* (Gould)

Campylorhynchus hypostictus GOULD, P. Z. S., 1855, p. 68 (Ucayali, Peru).

Zamora, 1 ♂; Macas, 1; Rio Suno, 5 ♂, 2 ♀; below San José, 1 ♀.

RANGE.—Tropical Zone: the species, Bahia to Bolivia and Colombia; *H. t. turdinus*, east Brazil.

These specimens are apparently typical. The rusty markings presented by Colombian specimens, to which I have before referred, are evidently due to immaturity.

(3378) *Heleodytes zonatus brevirostris* (Lafr.)

Campylorhynchus brevirostris LAFR., Rev. Zoöl., 1845, p. 339 (Bogotá); GOODF., 1901, p. 312 (Santo Domingo).

Esmeraldas, 5 ♂, 2 ♀; Coaque, 1 ♀; Chone, 3 ♂, 1 ♀.

RANGE.—*Heleodytes z. zonatus*, southeastern Mexico to Nicaragua; *H. z. restrictus*, Oaxaca and Tabasco; *H. z. costaricensis*, "highlands of Costa Rica" (Ridgw.); *H. z. brevirostris*, Magdalena Valley, Colombia, and coastal region of northwestern Ecuador.

The above outline of the range of this species shows that so far as our recorded information goes at least three of its races are isolated from one another. Its discovery in Ecuador adds a fourth region to those in which it is known to occur, but not an additional race, since I can discover no constant racial differences between Ecuadorean birds and a toptotypical series of *brevirostris*.

(3380) *Heleodytes fasciatus pallescens* (Lafr.)

Campylorhynchus pallescens LAFR., Rev. Zoöl., 1846, p. 93 ("Mexique," error; =s. w. Ecuador).

? *Campylorhynchus zonatoides*, SCL., 1860d, p. 272 (Babahoyo).

Campylorhynchus balleatus, TACZ., 1878, pp. 319, 749 (Tumbez); B. & T., 1883, p. 538 (Yaguachi); 1885, p. 71 (Yaguachi); S. & F., 1899a, p. 5 (Vinces; Balzar).

Daule, 3 ♂, 1 ♀; Chongoncito, 1 ♂; Duran, 1 ♀; Santa Rosa, 5 ♂, 3 ♀, 1?; Casanga, 2 ♂, 1 ♀; Guainche, 1 ♂; Rio Pullango, 1 ♂. Peru: Tumbez, 2 ♀; Samate, 1 ♀; Sullana, 4 ♂, 2 ♀; Chilaco, 2 ♂, 1 ♀; Lamor, 1 ♀; Milagros, 1 ♂; Paletillas, 1 ♂.

RANGE.—Tropical Zone: the species, Marañon Valley and Dept. of La Libertad on the coast, north to southwestern Ecuador; the race, southwestern Ecuador and northwestern Peru.

Intergradation with *H. f. fasciatus* occurs in northwestern Peru. We have specimens of that race from Trujillo and Huancabamba. The

former are larger and have longer bills.¹ They may be separable. A series from Palambla is intermediate between *fasciatus* and *pallescens*. Although most nearly resembling southern Mexican forms (*megalopterus* or *nelsoni*) this species appears to be of Amazonian origin on the Pacific coast, where it is unknown north of southwestern Ecuador.

(3385) *Odontorchilus branickii branickii* (Tacz. & Berl.)

Odontorhynchus branickii TACZ. & BERL., P. Z. S., 1885, p. 72, pl. vii, fig. 1 (Machay; Mapoto, Ec.).

RANGE.—Subtropical Zone; southern Peru through eastern Ecuador to eastern Colombia. *O. b. minor* Paramba, northwestern Ecuador.

We have no Ecuadorean specimens; four from eastern Peru (Urubamba and Chanchamayo Valleys) are slightly darker above than one from La Palma, Col.

(3386) *Odontorchilus branickii minor* (Hart.)

Odontorhynchus branickii minor HART., Bull. B. O. C., XI, 1900, p. 40 (Paramba, n. Ec.).

RANGE.—Known only from the type-locality.

We have no specimens. A male from La Palma, in southeastern Colombia, measures, wing 61.5 mm., tail 54 mm., tarsus 17.5 mm., culmen 12.5 mm., and belongs, therefore, to the larger form.

(3396) *Thryophilus superciliaris superciliaris* (Lawr.)

Thryothorus superciliaris LAW., Ann. Lyc. Nat. Hist. N. Y., IX, 1870, p. 235 (Puna Is.).

Thryothorus albipectus, SCL., 1860d, p. 273 (Babahoyo).

Thryophilus superciliaris, S. & F., 1899a, p. 6 (Savana de Guayaquil; Balzar; Puntilla de Santa Elena).

Manta, 1♂; Santa Elena, 1♂; Puna Is., 8♂, 1♀; 3?; Babahoyo, 1; Guayaquil, 2♂, 2♀.

RANGE.—Arid Tropical Zone of the Pacific coast: the species, from the vicinity of Pacasmayo, Peru, north to central western Ecuador; the race, Puna Island northward in Ecuador.

The geographic origin of this Wren is obscure. It appears to have no representative in the Marañon Valley and to be separated from *modestus* by the heavy forests of western Colombia and eastern Panama.

¹ The bill in Trujillo birds measures, from nostril, 4♂, 19–21 mm.; 3♀, 19–23 mm.; in Huancabamba birds, 3♂, 16–18.5 mm.; 4♀, 16.5–18.5 mm.

(3397) *Thryophilus superciliaris baroni* Hellm.

Thryophilus superciliaris baroni HELLM., Verh. Zoöl.-bot. ges. Wien, LII, 1902, p. 170 (Tembladera, Peru).

Thryothorus superciliaris, TACZ., 1877, pp. 319, 749 (Tumbez).

Jambeli Is., 2♂; Casanga, 1♀. Peru: Tumbez, 1♂, 1♀; Chilaco, 3♂, 1♀; Lamor, 2♂, 1♀; Samate, 1♂.

RANGE.—Pacific coast from vicinity of Pacasmayo north at least to Jambeli Island.

I have seen no topotypes, but the series above listed is so uniform in color that I assume it is referable to *baroni*. Guayaquil specimens of *superciliaris* in their brighter flanks and upperparts are nearer *baroni* than are those from Puna Island.

(3400) *Thryophilus leucopogon* Salvad. & Festa

Thryophilus leucopogon SALVAD. & FESTA, Boll. Mus. Tor., XV, No. 357, 1899, p. 6 (Rio Peripa, w. Ec.).

RANGE.—Tropical Zone; western Ecuador to eastern Panama.

We have specimens from Colombia and Panama, but none from Ecuador.

(3401) *Thryophilus nigricapillus nigricapillus* (Scl.)

Thryothorus nigricapillus SCL., P. Z. S., 1860, p. 84 (Nanegal, Ec.); 1860e, p. 291 (Esmeraldas).

Thryophilus nigricapillus, B. & T., 1883, p. 540 (Chimbo); HART., 1898, p. 479 (Cachaví; Chimbo); S. & F., 1899a, p. 6 (Rio Peripa); GOODF., 1901, p. 313 (San Nicolas; Intag); L. & R., 1922, p. 76 (Nanegal).

Bucay; junction Chanchan and Chiguancay (Rhoads).

Esmeraldas, 4♂, 2♀; Manaví, 3♀, 2?; Mindo, 2♂, 2♀; Naranjo, 2♂, 1♀, 1?; Bucay, 5♂, 1♀; Chimbo, 3♂, 2♀; La Chonta, 5♂, 6♀.

RANGE.—Humid Tropical Zone: the species, western Ecuador to Panama; the race, western Ecuador.

A very distinct species, of which no near relatives are known. Some Esmeraldas specimens resemble *connectens* in their black-barred throats and are obviously intermediates between the two forms.

(3405) *Pheugopedius mystacalis mystacalis* (Scl.)

Thryothorus mystacalis SCL., P. Z. S., 1860, p. 64 (Pallatanga, Ec.); 1860b, p. 74 (Lloa); B. & T., 1884, p. 285 (Cayandeled); S. & F., 1899a, p. 7 (Rio Peripa).

Junction Chanchan and Chiguancay (Rhoads).

Esmeraldas, 1 ♀; road to Nanegal, 1 ♀ juv.; Chimbo, 2 ♂; above Zaruma, 1 ♂, 1 ♀; Punta Santa Ana, 1 ♀; Las Piñas, 1; Alamor, 1 ♂.

RANGE.—The race, western Ecuador, humid Tropical Zone, and upward to Subtropical Zone.

Specimens from south of Chimbo have browner heads and lower parts than those from Chimbo, Bucay, and Naranjo (which may be considered topotypical), and I should think that the difference were racial did not a specimen from Esmeraldas, in northwestern Ecuador, agree with those from southwestern Ecuador. Furthermore, I have compared the Esmeraldas specimen with the type in the British Museum, with which, my notes say, it "exactly agrees but is slightly smaller." For the present, therefore, I assume that the differences shown by our Ecuadorian specimens are not racial and I place them all under *mystacalis*.

Having now an adequate series from western Ecuador, I am in a position to do justice to Mr. Bangs' *saltuensis* from the Subtropical Zone of western Colombia. Heretofore I have synonymized this race with true *mystacalis*¹ but, on comparison with this new material, it appears to be a recognizable form, distinguished from *mystacalis* chiefly by its incompletely barred tail. In *mystacalis* the tail is distinctly and definitely barred with black, in *saltuensis* the bars are fainter and broken.

This disposes of western Colombian specimens but still leaves me with two birds from the head of the Magdalena Valley, which have the tail barred, as in *mystacalis*; indeed they differ from that race only in having a smaller bill and somewhat more rufescent abdominal region.

(3415a) ***Pheugopedius sunenis* Chapm.**

Pheugopedius sunensis CHAPM., Am. Mus. Novit., No. 205, 1925, p. 10 (Rio Suno, Ec.).

Rio Suno, 9 ♂, 3 ♀; below San José, 1 ♂, 5 ♀.

Specific Characters.—Upperparts as in *P. cantator* (Tacz.) of central Peru, but breast and center of abdomen gray instead of pale ochraceous, the flanks darker; size much smaller; underparts as in *P. (coraya?) caurensis* Berl. & Hart., of the lower Orinoco, but breast grayer, and the back less rufescent, the crown darker; upperparts and flanks less rufescent than in *P. c. griseipectus* Sharpe.

RANGE.—Tropical Zone, eastern Ecuador.

The status of this species was discussed at the time of its description.

¹ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 515.

(3420) *Pheugopedius coraya griseipectus* (Sharpe)

Thryothorus griseipectus SHARPE, Cat. Bds. B. M., VI, 1881, p. 236, pl. xv, fig. 2 (Nauta, type; specimens from Sarayacu, Ec., and Pebas, Peru); GOODF., 1901, p. 313 (Archidona).

'Napo,' 1 juv. (Lawrence Coll., "W. E. M.")

RANGE.—Known only from the localities above mentioned.

We have a juvenal from "Napo" which is certainly not referable to *sunensis* and, differences of age aside, agrees with a topotype of *griseipectus* received from the Rothschild Museum. The latter resembles *coraya*, but has the head more nearly the color of the back, which in both adult and young is less intense in color than in *coraya*.

(3422) *Pheugopedius euophrys euophrys* (Scl.)

Thryothorus euophrys SCL., P. Z. S., 1860, p. 74 Lloa, Ec.); B. & T., 1884, p. 285 (Cechee; Cayandeled); 1885, p. 73 (La Union); GOODF., 1901, p. 313 (Pichincha, 12,000 ft.); MEN., 1911, p. 67 (Huantupungo); L. & R., 1922, p. 77 (road to Nanegal, 8,000 ft.).

Hacienda Garzon (Rhoads; examined by F. M. C.).

Woods on Pichincha, 1 ♀; road to Guala, 2 ♂, 1 ♀; road to Mindo, 1 ♀; near Nono, 1 ♀; road to Nanegal, 1 ♂.

RANGE.—Humid Temperate Zone: the species, eastern and western Andes of Ecuador; the race, West Andes.

A distinct species which apparently finds its nearest relative in the recently described *P. atriceps* Chapm.¹ of the Subtropical Zone of northern Peru. There are evidently two forms of this bird in Ecuador, the present in the West, the following in the East Andes.

(3422a) *Pheugopedius euophrys longipes* (Allen)

Thryothorus longipes ALLEN, Bull. A. M. N. H., II, 1889, p. 138 ("Ambato," Ecuador = vicinity of Baños?).

Thryothorus goodfellowi SCL., Bull. B. O. C., XI, 1901, p. 47 (Papallacta); GOODF., 1901, p. 13 (Papallacta).

Cinnicerthia paramosa REICH., J. f. O., LXV, 1917, p. 391 (Andes of Ecuador).

"Ambato," 1 ad. (type), 1 im.; Galgalan, 10,000 ft., Rio Upano, 1 ad., 1 im. upper Sumaco, 3 ♂ ad., 1 ♀ ad., 1 ♀ im.; above Baeza, 3 ♂ ad., 1 ♂ im., 3 ♀ ad.

RANGE.—Humid Temperate Zone, eastern Ecuador.

¹ Amer. Mus. Novit., No. 138, 1924, p. 13.

Comparison of these eleven specimens with ten from the West Andes, shows well-marked racial differences between the two, the eastern bird having the white confined, as a rule, to the throat, fewer black markings on the throat and breast, more rufous, less gray underparts and crown. Immature birds are nearly uniform above and below, without white or black on the throat, and in this plumage bear a superficial resemblance to *Cinnicerthia* a fact which, obviously, induced Reichenow to describe the young of *P. euophrys* as *Cinnicerthia paramosa*, an error to which Dr. Hellmayr calls my attention. Reichenow's type was without locality, and I have synonymized his proposed form under the east Andean race merely because we have specimens of this race in the "paramosa" stage of plumage.

Specimens from above Baeza are essentially topotypical of *goodfellowi*. They agree with the type of *longipes*. The latter, doubtless, did not come from Ambato. It was contained in a collection of about one hundred specimens to which I have had occasion to refer before. This collection was shipped from Ambato, but the presence in it of such characteristic eastern Ecuadorean birds as *Osculatia saphirina*, *Rupicola peruviana sanguinolenta*, *Ramphocelus atrosericeus*, and others indicate that it came from the 'Oriente,' doubtless through Baños.

(3423) *Pheugopedius paucimaculatus* (Sharpe)

Thryothorus paucimaculatus SHARPE, Cat. Bds. B. M., VI, 1881, p. 238 (Balzar Mts.); B. & T., 1883, p. 540 (Guayaquil).

Chongoncito, 3♂, 1♀, 1?; Guayaquil, 1?; Duran, 1♀; Rio Jubones, 1♀; Portovelo, 10♂, 5♀; Punta Santa Ana, 1; Las Piñas, 1♀; Alamor, 4♂, 4♀; Cebollal, 1♀; Guainche, 1♂, 1?. Peru: Palambla, 3♂, 3♀.

RANGE.—Tropical Zone; southwestern Ecuador and northwestern Peru.

There is much variation in the extent of the markings below. Some individuals deserve the name of their species, others are so heavily spotted that the relationship of the species to *P. sclateri* of the Marañon Valley is strongly suggested by the characters as well as by the distribution of the two forms. I have dwelt on this case in discussing the species of the Equatorial Arid Fauna.

(3434) *Cistothorus platensis æquatorialis* Lawr.

Cistothorus æquatorialis LAWR., Ann. Lyc. Nat. Hist. N. Y., X, 1874, p. 3 (Pichincha, Ec.); MEN., 1911, p. 67 (Pichincha); L. & R., 1922, p. 77 (Pichincha).

Cistothorus brunneiceps, B. & T., 1884, p. 285 (Cechce); GOODF., 1901, p. 313 (above Milligalli, 6,500 ft.); RHODES, 1912, p. 143 (Paramo of Pichincha and downward to 10,000 ft.).

Above Chambo (12,800 ft.); south base Pichincha (Rhoads).

Pichincha, 1 (type); above Guala, 1♂; Urbina, 2♂; Chimborazo, 1♂; Taraguacocha, 1 ♀; Cerro Huamani, 1♂, 1 ♀; upper Rio Pita, 1♂.

RANGE.—The group, Magellan region through South Temperate and Andean Paramo Zones to Canada; the race, Paramo Zone of Ecuador and Colombia.

While convinced that the South American members of the genus *Cistothorus* are not all intergrading races of *platensis*, lack of material prevents me from reaching satisfactory conclusions in regard to their relationships, and I therefore follow current usage in the treatment of this form. A juvenal from Maraynioc (type-locality of *graminicola* Tacz.) is exactly matched by one from Ecuador, while a Maraynioc adult differs from the average Ecuadorean bird only in having a slightly lighter crown. If distinct, the Peruvian form is certainly very near *æquatorialis*. (Fig. 16, p. 108.)

(3446) *Troglodytes musculus albicans* Berl. & Tacz.

Troglodytes furvus albicans BERL. & TACZ., P. Z. S., 1883, p. 540 (Guayaquil); HART., 1898, p. 479 (Cachaví; Paramba).

Troglodytes furvus, SCL., 1859a, p. 137 (Pallatanga); 1860d, p. 273 (Babahoyo); 1860e, p. 291 (Esmeraldas); B. & T., 1885, p. 73 (Yaguachi).

Troglodytes albicans, S. & F., 1899a, p. 7 (La Concepcion; Babahoyo; Savanna de Guayaquil; Vinces; Balzar; Puntilla de Santa Elena); L. & R., 1922, p. 77 (Ilana, 8,000 ft.; Zambiza, 8,000 ft.).

Troglodytes musculus albicans, CHAPM. & GRISCOM, Bull. A. M. N. H., L, 1924, p. 292 (Monog.).

Bucay; junction Chanchan and Chiguancay; Huigra; Chunchi (Rhoads).

Esmeraldas, 3♂; Rio de Oro, 4♂, 2 ♀; Isla La Plata, 1♂, 4 ♀, 1 ?; Chongoncito, 1♂; Daule, 1♂; Duran, 1♂, 1 ♀, 1 ?; Bucay, 1♂, 1 ♀; Rio Pindo, 1♂; El Chiral, 1 ♀; La Puente, 2♂; Santa Rosa, 3♂, 1 ♀; Portovelo, 1 ♀; Casanga, 1♂, 1 ?; Alamor, 6♂, 1 ♀; Lunamá, 1♂; Cebollal, 2♂.

RANGE.—The species, Magellan region to southern Mexico; the race, chiefly Tropical Zone, ranging up river valleys to 8,000 ft., southwestern Colombia to northern Peru (coast and Marañon Valley), Amazon Valley north to the Caribbean and Guianas.

The relationships of this race of *T. musculus* have been discussed by Mr. Griscom and myself in the paper above referred to. The almost continuous distribution of *albicans* from the Pacific coast to the Marañon Valley, through Palambra and Huancabamba, in connection with its differences from the Colombian *striatulus* and identity with the Amazonian form, implies its entrance to western Ecuador over the Marañon route.

The presence of *musculus* in the Temperate Zone of Colombia and Paramo Zone of Peru renders significant the absence of the species from both of these zones in Ecuador.

(3450) *Troglodytes solstitialis solstitialis* Scl.

Troglodytes solstitialis SCL., P. Z. S., 1858, p. 550 (Matos; Pinipi, Ec.); 1860c, p. 84 (Nanegal ?); B. & T., 1883, p. 541 (Cayandeled); 1884, p. 285 (Cayandeled); 1885, p. 73 (Baños; San Rafael; El Mirador); S. & F., 1899a, p. 7 (Pun); Goodf., 1901 p. 313 (Baeza).

Hemiura solstitialis, MEN., 1911, p. 67 (Oyacachi).

Forest above Chambo, 10,800 ft. (Rhoads).

Taraguacocha, 2♂; Cerro Huamani, 1♂; Oyacachi, 4♂, 2♀; above Baeza, 2♂, 2♀; upper Sumaco, 5♂, 1♀. Colombia: Central Andes, Almaguer, 1; Valle de las Pappas, 1; La Palma, 1. Peru: Chaupe, northeast of Huancabamba, 3♂, 3♀.

RANGE.—Chiefly Humid Temperate Zone: the species, from northern Argentina to Venezuela; the race, northern Peru to southern Colombia; largely through eastern Ecuador. Represented in western Panama and Costa Rica by *T. ochraceus*.

Our sixty-nine specimens of this species include topotypical or essentially topotypical specimens of all the recognized forms, the ranges and characters of which, as they are revealed by this material, are presented below:

1. *Troglodytes solstitialis pallidipectus* CHAPM.

RANGE.—All three ranges of the Colombian Andes south to about 1° 45' north latitude; north to the Mérida region, Venezuela (type-locality, Cerro Munchique, Col.).

Characters.—Nearest *T. s. macrourus* of eastern Peru. Superciliary averaging more ochraceous; flanks and ventral region deeper and more extensively Dresden brown, the under tail-coverts brownish instead of whitish barred with black. Wing 50 mm., tail 35 mm.

Specimens Examined.—Colombia: West Andes, 4 (including type); Central Andes, 12; East Andes, 3. Venezuela: Paramo Piños, 1; Paramo Conejo, 1.

The Merida birds are somewhat more richly colored and have shorter wings (47 mm.) than most Colombian birds. Specimens from Almaguer, Valle de las Pappas and La Palma, previously referred by me to this race ('Distribution of Bird-Life in Colombia') are much nearer to true *solstitialis*.

2. *Troglodytes solstitialis solstitialis* SCL.

RANGE.—From about 1° 45' north in Colombia south, chiefly through eastern Ecuador to northern Peru (type-locality, Matos, northeast of Riobamba, Ec.).

Characters.—Smallest and most richly colored form of the species; lower parts largely ochraceous buff, the center of the abdomen white; flanks often more or less barred; lower tail-coverts black and white as in *macrourus*. Wing 46 mm., tail 32 mm.

Specimens examined.—(As above).

It is singular that this race, instead of being intermediate between *pallidipectus* of Colombia and *macrourus* of Peru, differs more from both of these birds than they do from each other. The Colombian specimens have the under tail-coverts as in *pallidipectus* but otherwise agree with *solstitialis*. Peruvian birds are typical.

This is a comparatively rare bird in western Ecuador, whence it is known only from Cayandeled and Taraguacocha.

3. *Troglodytes solstitialis macrourus* BERL. & STOLZ.

RANGE.—Eastern Peru from the Urubamba region north at least to the Province of Junin and probably the Chachapoyas region (type-locality, central Peru = Maraynioc ?).

Characters.—Very near *T. s. pallidipectus*. Superciliary paler, ventral region less extensively colored, under tail-coverts white barred with black. Wing 51 mm., tail 37 mm.

Specimens Examined.—Peru: Prov. Junin, Rumicruz, 3; Maraynioc, 2; Chelpes, 2; Torontoy, Urubamba Valley, 2.

The black and white, instead of black and ochraceous, under tail-coverts is the only constant character separating this from *pallidipectus*. The Torontoy birds have the white superciliary of *frater* but otherwise agree with those from central Peru.

4. *Troglodytes solstitialis frater* SHARPE

RANGE.—Southeastern Peru and humid Andean slopes in Bolivia (type-locality).

Characters.—Superciliary white; upperparts less rufescent than in the more northern forms; underparts nearly uniform, whitish washed with pale ochraceous buff. Wing 50 mm., tail 38 mm.

Specimens Examined.—Peru: Oconeque, near Limbani (northeast of Tirapata), 1. Bolivia: Incachaca, Dept. Cochabamba, 8.

The white superciliary and generally less rufescent coloring are the distinguishing marks of this race.

5. *Troglodytes solstitialis auricularis* CAB.

RANGE.—Tucuman region of northwestern Argentina.

Characters.—Similar to *T. s. frater* but slightly paler above and tail shorter. Wing 50 mm., tail 35 mm.

Specimens Examined.—Argentina: Above San Pablo (4,000 ft.), Prov. Tucuman, 4.

This race is so near *T. s. frater* that some examples of the latter exactly match our San Pablo birds. Our series does not satisfactorily show the relationships of Bolivian with Argentine birds. (See, however, Hellmayr, Arch. für Naturg., No. 85, 1919, p. 5.)

(3455) **Henicorhina leucosticta hauxwelli** Chubb

Henicorhina leucosticta hauxwelli CHUBB. Bull. B. O. C., XL, 1920, p. 156 (Elvira, e. Peru).

Cyphorhinus leucostictus, SCL., 1858a, p. 63 (Napo).

Henicorhina leucosticta, S. & F., 1899a, p. 6 (Valle del Santiago).

Zamora, 1 ♀; Macas region, 3; Rio Suno, 4 ♂, 4 ♀; below San José, 5 ♂, 3 ♀.

RANGE.—Tropical Zone: the species, northeast Peru to Guiana and eastern Panama; the race, northeastern Peru, eastern Ecuador (and southeastern Colombia?).

An adult female from Pomará at the head of the humid Tropical Zone on the Marañon is our nearest approach to a topotypical specimen of this race. It is essentially identical with several examples in a series of thirteen topotypical birds from British Guiana. The Ecuadorean specimens, however, average larger and darker than Guianan ones, and adults have the black and white markings of the head more extended posteriorly.

On the assumption that they rather than the Pomará bird, illustrate the characters of *hauxwelli*, I refer them to that race. Here, also, should go three essentially adult examples from La Morelia and Florencia, southeastern Colombia, but if our determinations are to be based on facts rather than on theories, these Colombian specimens are to be placed with *leucosticta* rather than *hauxwelli*.

(3456) **Henicorhina inornata** Hellm.

Henicorhina inornata HELLM., J. f. O., 1903, p. 528 (Lita, n. w. Ec.); L. & R., 1922, p. 77 (Mindo).

RANGE.—Tropical Zone; northwestern Ecuador and western Colombia.

Our ten specimens of this interesting form are all from Colombia. I have discussed their relationships in my paper on the birds of that country (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, pp. 523, 524).

(3457) **Henicorhina leucophrys leucophrys** (Tsch.)

Troglodytes leucophrys TSCH., Arch. für Naturg., 1844, p. 282 (Peru).

Troglodytes guttatus HARTL., Syst. Verz. d. Ges. Mus. Bremen, 1844, p. 28 (New Granada).

Cyphorhinus griseicollis, SCL., 1860a, p. 64 (Pallatanga).

Henicorhina leucophrys, B. & T., 1883, p. 539 (Chimbo); 1885, p. 72 (Machay); GOODF., 1901, p. 312 (East and West Andes, 9,000–11,500 ft.); MEN., 1911, p. 68 (Mindo).

Henicorhina leucophrys berlepschi RIDGW., Proc. Biol. Soc. Wash., XVI, 1903, p. 168 (Chimbo).

Pagma Forest (Rhoads).

Verdecocha, 1 ?; Mindo, 3; Pedregal, 1 ♂ (*ex* Berlepsch); Cerro Manglar Alto, 1 ♂; Bucay, 1 ♂; Naranjo, 1; Chimbo, 2 ♂ (1 *ex* Berlepsch, type of *Henicorhina leucophrys berlepschi* Ridgw.); Rios Coco and Chimbo, 1 ♂, 3 ♀; "vicinity Quito" (*ex* British Museum; agrees with Cayandede cotypes of *hilaris*). Sabanilla, 4 ♂, 2 ♀; Zamora, 1 ♂, 1 ?; Baeza, 4 ♂, 2 ♀; below Oyacachi, 2 ♂, 2 ♀; lower Sumaco, 3 ♂, 7 ♀; upper Sumaco, 2 ♂, 1 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to Mexico; the race, Peru to eastern Panama, except southwestern Ecuador and Santa Marta Mts.

Examination of a very large series of this species from throughout its range convinces me that *leucophrys leucophrys* ranges from Peru to Panama. The facts on which this belief is based are presented at length in a monograph of this group to be published later and need not therefore be presented here.

(3460) *Henicorhina leucophrys hilaris* Berl. & Tacz.

Henicorhina hilaris BERL. & TACZ., P. Z. S., 1884, p. 284 (Cayandede; Chaguar-pata; Pedregal, Ec.); MEN., 1911, p. 68 (Gualea); L. & R., 1922, p. 77 (Mindo).

Junction Chanchan and Chiguancay (Rhoads).

El Chiral, 4 ♂, 1 ♀; La Puente, 1 ♂; Zaruma, 6 ♂, 1 ♀; Punta Santa Ana, 2 ♂, 1 ♀; Salvias, 2 ♂, 2 ♀; Alamor, 3 ♂, 10 ♀; San Bartolo, 1 ♂; Las Piñas, 1 ♂, 1 ♀; Celica, 2 ♂, 2 ♀.

RANGE.—Subtropical Zone; southwestern Ecuador north to the Chimbo valley.

A detailed study of our quite adequate material shows that typical specimens of both *hilaris* and *leucophrys*, with intergrades between them, are found associated in the Chimbo valley, and leads to the conclusion that *hilaris* is a mutant of *leucophrys* with which it hybridizes, and that it is not separable from "*bangsi*" of the Santa Marta group. The evidence on which this theory rests will be presented in full in a monograph of the group.

(3464) *Leucolepis modulator salvini* (Sharpe)

Cyphorhinus salvini SHARPE, Cat. Bds. B. M., 1881, p. 292 pl. xviii, fig. 1 (Rio Napo, Ec.).

Cyphorhinus modulator, SCL., P. Z. S., 1858a, p. 63 (Napo).

Zamora, 1 ♂, 1 ?; Sarayacu, 1; Rio Suno, 4 ♂, 5 ♀; below San José, 3 ♂, 5 ♀.

RANGE.—Tropical Zone: the species, Bolivia to Colombia and lower Amazonia; the race, eastern Ecuador and southeastern Colombia.

Two specimens from Florencia, southeastern Colombia, have paler backs and flanks than Ecuadorean birds, and in one the rufous of the

crown is more extended than in any other specimen in the series. Three southeastern Peruvian birds are intermediate between true *modulator* and *salvini*, but in the absence of examples of *rufogularis* of northeastern Peru, I cannot determine them.

(3466) ***Leucolepis phaeocephalus phaeocephalus* (Scl.)**

Cyphorhinus phaeocephalus SCL., P. Z. S., 1860, p. 291 (Esmeraldas, Ec.); B. & T., 1883, p. 539 (Chimbo); S. & F., 1899a, p. 5 (Rio Peripa).

Bucay (Rhoads).

Esmeraldas, 5♂, 4♀; Rio de Oro, 2♀, 1?; Cerro Manglar Alto, 1♂; Chimbo, 1♂, 1♀; La Chonta, 1♂, 1♀.

RANGE.—Tropical Zone, Colombian-Pacific Fauna.

Specimens from La Chonta are less rufescent and indicate the existence of a southwestern Ecuadorean race.

(3468) ***Rhinorchilus thoracicus dichrous* (Scl. & Salv.)**

Cyphorhinus dichrous SCL. & SALV., P. Z. S., 1879, p. 492, pl. xli (Remedios).

Cyphorhinus thoracicus dichrous, B. & T., 1885, p. 71 (Machay; Mapoto, Ec.).

Sabanilla, 1♀; Zamora, 1♀; Macas region, 2; lower Sumaco, 2♂.

RANGE.—The species, southern Peru to Colombia; the race, chiefly Subtropical Zone, eastern Ecuador, Central, West (and East ?) Andes, Colombia.

The differences between two specimens from southeastern Peru (*thoracicus*) and twelve from Colombia (*dichrous*) consist chiefly in the darker head and more chestnut-rufous abdomen of the latter. In these respects eastern Ecuadorean birds unquestionably agree with *dichrous* rather than with *thoracicus*, a conclusion which has already been reached by Berlepsch and Taczanowski (*loc. cit.*) and by Hellmayr (Arch. für Naturg., 1919, p. 4).

(3471) ***Microcerculus bambla albigularis* (Scl.)**

Heterocnemis albigularis SCL., P. Z. S., 1858, p. 67 (Rio Napo, Ec.); 1858d, p. 148 (Rio Napo).

Rio Suno, 1♂, 1♀; below San José de Sumaco, 4♂, 4♀; Sarayacu, 1.

RANGE.—Tropical Zone: the species Cayenne to eastern Ecuador.

In spite of the fact that the quite distinct *M. caurensis* appears to separate the ranges of *bambla* and *albigularis*, these birds seem to me to be subspecifically related.

(3472) *Microcerculus marginatus marginatus* (Scl.)

Heterocnemis marginata SCL., P. Z. S., 1855, p. 145 (Bogotá).

Microcerculus bicolor, S. & F., 1899a, p. 6 (Valle del Rio Santiago).

Microcerculus marginatus marginatus HELLM., Nov. Zoöl., XIII, 1906, p. 354 (crit., range).

Rio Suno, 1 ♂, 6 ♀.

RANGE.—Tropical Zone; two races, *M.m. marginatus* from Bolivia to eastern Colombia, east to the lower Amazon; *M.m. occidentalis* as below.

Our series of eighteen specimens of this race from Peru, lower Amazon, Ecuador, and Colombia confirms Hellmayr's remarks concerning its variations.

(3473) *Microcerculus marginatus occidentalis* Hellm.

Microcerculus marginatus occidentalis HELLM., Nov. Zoöl., XIII, 1906, p. 354 (Lita, n. w. Ec., type; also Pambilar and Cachaví).

Microcerculus bicolor marginatus, HART, 1898, p. 479 (Cachaví).

Naranjo, 1 ♂.

RANGE.—Tropical Zone; Colombian-Pacific Fauna.

We have also seven specimens from western Colombia.

(3475) *Microcerculus lusciniæ tæniatus* Salv.

Microcerculus tæniatus SALV., Ibis, 1881, p. 130, pl. iii, fig. 2 (Balzar, Ec.); B. & T., 1883, p. 539 (Chimbo).

Bucay (Rhoads).

Chone, 1 ♀; Chimbo, 1 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, western Ecuador to Costa Rica and through northern Colombia to northern Venezuela; the race, western Ecuador.

Specimens from eastern Panama are midway between *lusciniæ* and *antioquiensis*, and thus indicate the intergradation, and hence subspecific relationship, of these two groups. The eastern Panama (Tarcuna) specimens resemble a Canal Zone specimen of *lusciniæ* in rufescence of the upperparts and in the general tone of the underparts where, however, one is barely, the other more distinctly barred. Doubtless they represent an undescribed race.

(3476) *Microcerculus lusciniæ squamulatus* Scl. & Salv.

Microcerculus squamulatus SCL. & SALV., P. Z. S., 1875, p. 37, pl. vi (San Cristobal, Ven.).

Rio Suno, 1 ♀.

RANGE.—Tropical Zone; the species, Venezuela to eastern and western Ecuador and Panama.

This specimen doubtless represents an undescribed form of *M. squamulatus* which is now, for the first time, recorded from eastern Ecuador. In pattern of marking it resembles *tæniatus* of western Ecuador, but is much darker and more rufescent; darker, indeed, than *M. marginatus*.

FAMILY CINCLIDÆ. DIPPERS

(3478) *Cinclus leuconotus* Scl.

Cinclus leuconotus SCL., P. Z. S., 1857, p. 274 (New Granada); B. & T., 1885, p. 71 (San Rafael); GOODF., 1901, p. 311 (Papallacta, near source of a hot spring); MEN., 1911, p. 68 (Tumbaco).

Hacienda Garzon (Rhoads).

Verdecocha, 1 ♂; Taraguacocha, 1 ♂; Salvias, 1 ♀; Las Piñas, 1 ♀; Cumbaya, 1; Papallacta, 2 ♂; upper Rio Upano, 1.

RANGE.—Chiefly Subtropical Zone, Ecuador to Venezuela.

I find no racial variation in a series of specimens of this species from throughout its range.

FAMILY MIMIDÆ. MOCKINGBIRDS AND THRASHERS

(3485) *Mimus longicaudatus punensis* Hellm.

Mimus longicaudatus punensis HELLM., Verh. zoöl.-bot. ges. Wien, LIII, 1903, p. 222 (Puna Is.).

Mimus longicaudatus, TACZ., 1877, p. 449 (Tumbez); B. & T., 1883, p. 539 (Guayaquil); S. & F., 1899a, p. 5 (Puntilla de Santa Elena).

Bahia de Caragues, 7 ♂, 3 ♀; Manta, 2 ♂, 1 ♀; Santa Elena, 1 ♂, 2 ♀; Guayaquil, 1 ♀; Puna Is., 1 ♂, 1 ♀; Jambeli Is., 1 ♀; Santa Rosa, 1 ♂, 3 ♀; Casanga, 3 ♂, 1 ♀; Loja, 1 ♂.

RANGE.—Arid Tropical Zone: the species, Ica, Peru, to central western Ecuador and Marañon Valley; the race, Ecuador.

Manaví specimens differ from a Department of Lima, Peru, series by their grayer color and usually smaller size, but examples from north-western Peru and the adjoining parts of Ecuador are variously intermediate.

This species apparently finds its nearest relative in *M. thenca* of central Peru, but the known ranges of the two birds are widely separated.



1. CICHLOPSIS CHUBBI CHAPM.
2. RAMPHOTRIGON FUSCICAUDA CHAPM.

(3485a) *Mimus longicaudatus platensis* Chapm.

Mimus longicaudatus platensis CHAPM., Am. Mus. Novit., No. 143, 1924, p. 15 (La Plata Is., off Prov. Manaví, w. Ec.).

La Plata Is., 4♂, 1♀ ?.

RANGE.—La Plata Is.

Subspecific Characters.—Resembling *M. l. punensis* Hellm. of the coastal region of southwestern Ecuador in color, but nearer *M. l. longicaudatus* Tsch. of western Peru in general size, the bill larger than in either.

This slightly differentiated insular race is the only one of the seventeen species of land-birds taken by Richardson at La Plata Island that exhibits sufficient racial variation to warrant a name.

FAMILY TURDIDÆ. THRUSHES, SOLITAIRES, ETC.

(3504a) *Cichlopsis chubbi* Chapm. (Plate XXIX)

Cichlopsis chubbi CHAPM., Am. Mus. Novit., No. 138, 1924, p. 15 (Mindo, Ec.). Mindo, Huila, 1♂, 1♀.

Specific Characters.—A very distinct species most nearly related to *C. gularis* Saly. & Godm. of British Guiana, but larger, the throat chestnut-hazel, the ventral region ochraceous-orange, etc.

RANGE.—Known only from the type-locality.

The discovery of this striking new species extends the known range of the genus *Cichlopsis* from Guiana and eastern Brazil to western Ecuador. The locality "Huila" given by the collector is presumably below Mindo since other specimens from this station are of species known to inhabit the Tropical Zone, the zone in which we should expect to find the species here described.

Cichlopsis leucogenys, supposed to inhabit eastern Brazil, is known to me only from the plate (xix) in 'Exotic Ornithology.' It appears to be less like *C. chubbi* than is *C. gularis*, though evidently closely related to the latter. This opinion, I should add, is confirmed by Dr. Hellmayr who has seen our specimens of *chubbi* as well as specimens of *leucogenys*.

I have named this beautiful solitaire *C. chubbi* as a tribute to the memory of the late Charles Chubb, an earnest student of tropical American birds who, as the author of the 'Birds of British Guiana' and (with Lord Brabourne) of 'A List of the Birds of South America', rendered notable service to neotropical ornithology, and to whom I am indebted for much valuable coöperation.

(3505a) **Myadestes ralloides venezuelensis** *Scl.*

Myadestes venezuelensis SCL., Ann. & Mag. Nat. Hist., XVII, 1856, p. 468 (Caracas, Ven.).

Myadestes ralloides, B. & T., 1885, p. 71 (Mapoto).

Sabanilla, 1 ♂, 1 ♀; near Macas, 1; below Oyacachi, 1 ♂ juv.; lower Sumaco, 2 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to Venezuela; the race, eastern Ecuador to Venezuela.

These specimens agree with others from the East Andes of Colombia.

(3505b) **Myadestes ralloides plumbeiceps** *Hellm.*

Myadestes ralloides plumbeiceps HELLM., Anz. Ornith. Ges. Bayern, 1921, p. 27 (Pueblo Rico, 5,200 ft., Choco, Col.); L. & R., 1922, p. 77 (near Mindo).

Myadestes venezuelensis, SCL., 1860a, p. 64 (Pallatanga).

Myadestes ralloides, GOODF., 1901, p. 311 (Milligalli; Guala; near Mindo).

Guala, 2 ♂; Zaruma, 1 ♂; Alamor, 1 ♀.

RANGE.—Subtropical Zone, western Colombia and western Ecuador.

Ecuadorean birds agree with a topotypical series from western Colombia.

(3507) **Entomodestes coracinus** (*Berl.*)

Myadestes coracinus BERL., Orn. Monat., V, 1897, p. 175 (St. Pablo, s. w. Col.); GOODF., 1901, p. 311, pl. viii (below Baeza, probably 4,000 ft.).

Entomodestes coracinus, S. & F., 1899a, p. 5 (Guala).

RANGE.—Subtropical Zone, eastern and western Ecuador and western Colombia.

Our only specimen of this rare Solitaire was taken in the Andes of Antioquia, whence we received it through the generosity of Hermano Nicéforo Maria, then at Medellin.

(3502) **Turdus reevei** *Lawr.*

Turdus reevei LAWR., Ann. Lyc. Nat. Hist. N. Y., X, p. 234, 1870 (Puna Is.; Guayaquil).

Chone, 1 ♂; Daule, 2 ♂ juv., 1 ♀ juv. (April 22, 23); Portovelo, 1 ♀; Casanga, 1 ♂; Salvias, 1 ♂; San Bartolo, 1 ♂, 1 ♀; Lunamá, 1 ♂; Alamor, 8 ♂, 5 ♀; Celica, 2 ♂; Las Piñas, 2 ♂; Cebollal, 1 ♀; Guainche, 4 ♂, 1 ♀. Peru: Paletillas, 3 ♂, 1 ♀; Milagros, 2 ♂; Palambra, 3 ♂, 3 ♀.

RANGE.—Arid Tropical Zone; from Marañón drainage to central western Ecuador.

The abdomen in fresh plumage is ochraceous-buff, which subsequently disappears. A distinct species probably of Equatorial Arid Faunal origin since it has no known representative in Amazonia.

(3508a) *Turdus serranus fuscobrunneus* (Chapm.)

Planesticus fuscobrunneus CHAPM., Bull. A. M. N. H., XXXI, 1912, p. 533 (Cerro Munchique, w. Col.).

Turdus serranus, B. & T., 1884, p. 283 (Cayandeled; Chaguarpata); 1885, p. 70 (Machay; Mapoto).

Turdus atrosericeus, SCL., 1859a, p. 136 (Pallatanga); 1860c, p. 83 (above Puellaro).

Merula serrana, MEN., 1911, p. 69 (Yamboya; Auca).

Pagma Forest (Rhoads).

San Bartolo, 2♂, 2♀; Baeza, 3♂, 2♂ juv., 1♀; below Oyacachi, 1♀; upper Sumaco, 2♂.

RANGE.—Subtropical Zone; the species, Bolivia to Venezuela.

All our specimens of this species from Ecuador and Colombia (including the East Andes) are apparently referable to but one form. The females, with one exception, are less rufescent, more olive, than two from southeastern Peru, but the status of this form must remain in doubt until adequate topotypical series from Peru and Venezuela are available.

(3511) *Turdus leucops* Tacz.

Turdus leucops TACZ., P. Z. S., 1877, p. 331 (Ropaybamba, Peru); HART., 1898, p. 479 (Paramba); GOODF., 1901, p. 309 (Gualea).

Merula leucops, MEN., 1911, p. 69 (Pachijal).

Near Nanegal, 1♂; Zamora, 7♂, 1♀; San José de Sumaco, 1♂.

RANGE.—Subtropical Zone; Peru, eastern and western Ecuador, Colombia, and Mt. Roraima, British Guiana.

We have no topotypes. The Nanegal bird is smaller and has a smaller bill than those from eastern Ecuador.

(3514) *Turdus euryzonus* (Du Bus)

Merula euryzonus DU BUS, Esquiss. Orn., 1845, pl. xxxiv (no locality given; Brabourne & Chubb suggest Colombia).

Turdus euryzonus, B. & T., 1885, p. 70 (Machay).

Loja, 1♂; Zamora, 2♀; upper Sumaco, 2♂, 1♀; above Archidóna, 1♂; below Oyacachi, 1♂; Baeza, 1♂. Peru: Chaupe, 4♂, 1♀, 1?.

RANGE.—Subtropical Zone, northern Peru to Venezuela.

Our only Colombian specimens are old Bogotá skins in which the upperparts and breast are much browner than in Ecuadorean and Peruvian skins, a difference doubtless due to their age. This is apparently a representative of *T. rufiventer* of southern Brazil and southward.

(3519a) *Turdus phæopygus saturatus* Berl. & Stolz.

T[urdus] phæopygus saturatus BERL. & STOLZ., P. Z. S., 1896, p. 326 (e. Ec.).

Turdus phæopygus, SCL., 1858a, p. 64 (Napo); S. & F., 1899a, p. 4 (Valle del Zamora; Valle del Rio Santiago).

Rio Suno, 6 ♂, 6 ♀; below San José, 1 ♂, 1 ♀; Zamora, 7 ♂, 2 ♀. Peru: Chinchipe Valley, 5 ♂, 2 ♀.

RANGE.—Tropical Zone: the species, Peru to Colombia and Guiana; the race, northern Peru, eastern Ecuador, eastern Colombia.

These specimens are deeper colored, more rufescent above than true *phæopygus*. The only description of this form I have discovered is included incidentally by von Berlepsch in his comments on *phæopygus spodiolaemus* (Berl. & Stolz.).

(3523) *Turdus tristis daguæ* Berl.

Turdus daguæ BERL., Orn. Monat., V, 1897, p. 176 (San José, Col.); HART., 1898, p. 479 (Cachavi).

RANGE.—The species, northwestern Ecuador to Mexico; the race, Tropical Zone, northwestern Ecuador and western Colombia.

We have only Colombian specimens of this race.

(3528) *Turdus nudigenis* Lafr.¹

Turdus nudigenis LAFR., Rev. Zoöl., 1848, p. 4 (Caracas, Ven.).

RANGE.—Tropical Zone; eastern Ecuador to Guiana.

We have specimens from eastern Colombia but none from Ecuador, whence I record it on the authority of Brabourne & Chubb ('Birds of South America,' p. 345).

(3530) *Turdus maculirostris* Berl.

Turdus ignobilis maculirostris BERL., P. Z. S., 1883, p. 583 (Chimbo, Ec.); B. & T., 1884, p. 283 (El Placer).

Turdus albiventris, SCL., 1859a, p. 136 (Pallatanga); 1860d, p. 272 (Babahoyo).

Turdus maculirostris, HART., 1898, p. 479 (Chimbo); S. & F., 1899a, p. 3 (Guayaquil; Vines).

Bucay (Rhoads).

¹ *Turdus gymnophthalmus* Cab. See Bangs & Penard, Bull. M. C. Z., LXIII, 1919, p. 31.

Esmeraldas, 3♂, 2♀; Chone, 1♂, 1♀; Manaví, 1♀; Daule, 3♂, 2♀; Chongon Hills, 1♀; Naranjo, 1 juv.; Chimbo, 1♀; Coco and Chimbo, 1♂; El Chiral, 1♂; La Chonta, 1♂, 3♀; Santa Rosa, 1♂, 2♀; Portovelo, 5♂, 1♀; Zaruma, 1♂, 2♀; Rio Pindo, 1♀; Salvias, 2♂, 1♀; Las Piñas, 1♂, 2♀; Alamor, 3♂, 4♀; Guainche, 1♂, 1♀. Peru: Milagros, 1♂.

RANGE.—Chiefly Tropical Zone; northwestern Peru and western Ecuador.

In general coloration, including that of the bill, and in the partially bare orbital region, this species seems to be nearly related to *T. nudigenis* Lafr. The absence of close relatives in western Colombia and northward suggest that it is of Amazonian origin.

(3533) *Turdus ignobilis debilis* Hellm.

Turdus ignobilis debilis HELLM., J. f. O., 1902, p. 56 (Rio Madeira, Brazil).

Turdus albiventris, SCL., 1858b, p. 451 (Zamora).

Turdus ignobilis, S. & F., 1899a, p. 3 (Gualaquiza); GOODF., 1901, p. 310 (Archidona).

Zamora, 3♂, 2♀.

RANGE.—Tropical Zone: the species, southern Peru to Colombia, east to British Guiana; the race, eastern Peru, western Brazil, eastern Ecuador, and eastern Colombia.

This species is apparently not represented in western Ecuador.

(3537a) *Turdus obsoletus parambanus* Hart.

Turdus obsoletus parambanus HART, Nov. Zoöl., 1920, p. 475 (Paramba, Ec.).

Turdus obsoletus, B. & T., 1883, p. 539 (Chimbo); MEN., 1911, p. 69 (Pachijal).

Merula obsoleta parambana, L. & R., 1922, p. 77 (Mindo).

Mindo, 2♂, 3♀. Colombia: Chocó, 1 juv.

RANGE.—The species; northwestern Ecuador to Costa Rica; the race, northwestern Ecuador and western Colombia.

The Mindo specimens are essentially topotypical. Compared with the type and ten eastern Panama specimens of *obsoletus*, they fully confirm the validity of this race. The Ecuadorean birds are rich Saccardo's umber above, while the Panama race is nearer ochraceous tawny. The underparts show a corresponding difference. A juvenal example from the Chocó, northwestern Colombia, evidently is nearer to *parambanus* than to *obsoletus*, thereby supporting Dr. Hartert's identification of a Jimenez (Colombia) bird as *parambanus*.

Our single specimen of this group from San Antonio above Cali, type-locality of *colombianus* Hart., should be a topotype of that race. It evidently, however, does not agree with the type in color since Dr.

Hartert, while treating *parambanus* as a subspecies of *obsoletus*, expresses a doubt as to *columbianus* being a race of that species, whereas our San Antonio bird more nearly resembles *obsoletus* than it does *parambanus*. I venture the prediction, therefore, that *columbianus* will prove to be an intergrading Cauca Valley form of the group. I agree with Dr. Hartert's suggestion that *obsoletus* may be a representative of *hauxwelli*.

(3544a) ***Turdus fuscater gigantodes* Cab.**

Turdus gigantodes CAB., J. f. O., 1873, p. 315 (Maraynioc, Peru).

Turdus gigas, SCL., 1858b, p. 451 (Cuenca).

Chiral, 2♂, 1♀; San Bartolo, 4♂, 2♀; Taraguacocha, 1♂, 3♀; Guachanamá, 2♀; Celica, 1♂; El Paso, 2♂, 2♀; Bestion, 2♂, 4♀; Loja, 4♂, 1♀. Peru: El Tambo, 4♂, 1♀.

RANGE.—Chiefly Temperate Zone; Central Peru north to central southern and southwestern Ecuador.

Specimens from central southern Ecuador (Bestion; El Paso; Loja) are nearer typical *gigantodes* than those from the West Andes of Ecuador, which exhibit a decided olivaceous tinge. The relationships of this group were discussed when describing the following race.

(3544b) ***Turdus fuscater quindio* Chapm.**

Turdus fuscater quindio CHAPM., Am. Mus. Novit., No. 160, 1925, p. 1 (Laguneta, 10,300 ft., Quindio, Central Andes, Col.).

Turdus gigas, SCL., 1858c, p. 550 (Titicun; Matos); 1859a, p. 136 (Pallatanga); 1860c, p. 84 (Nanegal); B. & T., 1885, p. 70 (Baños); HART., 1898, p. 479 (near Cayambe, between 9,000 and 10,000 ft.); S. & F., 1899a, p. 4 (Chaupi; Valle de Chillo); GOODF., 1901, p. 310 (e. and w. Ecuador, between 8,500 and 11,500 ft.).

Semimerula gigas, MEN., 1911, p. 70 (Garretas); L. & R., 1922, p. 77 (Tumbaco; Chaupicruz; near Quito; near Nono; Tablon).

Above Chambo (10,300–10,700 ft.), Hacienda Garzon; Chunchi; Huigra (Rhoads).

Mojanda Mts., 1♂, 1♀; Pichincha, 1♂, 3♀; Cumbaya, 1♂; Pallatanga, 1♂, 1♀; upper Sumaco, 6♂, 2♀; Zuna (7,000 ft.), Rio Upano, 1; Oyacachi, 4♂, 2♀; below Oyacachi, 1♀; below Papallacta, 1♀; above Baeza, 2♂, 2♀.

Subspecific Characters.—Next to *T. f. ockendeni* Hellm. of southeastern Peru, the darkest known race of the species; much darker throughout than *T. f. gigantodes* Cab. of central and northern Peru; the upperparts in fresh plumage dark mouse-gray rather than deep mouse-gray; the underparts deep mouse-gray rather than mouse-gray; the entire plumage with a slight olivaceous cast. In general color differing from *T. f. gigas* Fraser of the Bogotá region even more pronouncedly than it does from *gigantodes*. The plumage of the latter, both above and below, has a brownish cast lacking in both *gigantodes* and *quindio*.

RANGE.—Chiefly Temperate Zone; eastern and northwestern Ecuador; Central and West Andes, Colombia.

(3549) ***Turdus chiguanco conradi* Salvad. & Festa**

Turdus conradi SALVAD. & FESTA, Boll. Mus. Tor., XIV, 1899, No. 357, p. 4 (Cuenca; Sigsig, Ec.).

Turdus chiguanco, SCL., 1858b, p. 451 (Cuenca); 1858c, p. 550 (Riobamba).
Riobamba (Rhoads).

El Paso, 4♂, 1♀; Loja, 1♂; Chimborazo, 4♂, 1♀.

RANGE.—*Turdus chiguanco chiguanco*, coastal region from northern Chile at least to Dept. Lima, Peru; *T. chiguanco conradi*, chiefly Temperate Zone, Bolivia to Chimborazo, Ec.

With more topotypical material of both *chiguanco chiguanco* and *chiguanco conradi*, I am able to add to the evidence contained in Dr. Hellmayr's table of measurements showing that true *chiguanco* is confined to the coastal region, while *conradi* is the Temperate Zone form ranging from Bolivia to Ecuador. I can detect no constant or even average difference in color between these two forms. It is possible that in *conradi* the under wing-coverts may be more ochraceous-rufous, but there is so much individual variation in this character that it possesses little or no diagnostic value. The two forms therefore can be distinguished only by size, *conradi*, as might be expected in a high-altitude bird, being the larger and with a notably longer tail.

Specimens from central western Peru are larger than topotypical ones, but are still referable to true *chiguanco*.

	Measurements	Wing mm.	Tail mm.
<i>T. chiguanco chiguanco</i> , Cocachacra, s. w. Peru	♂	126	99
<i>T. chiguanco chiguanco</i> , Cocachacra, s. w. Peru	♂	126	98
<i>T. chiguanco chiguanco</i> , Cocachacra, s. w. Peru	♂	127	98
<i>T. chiguanco chiguanco</i> , Moquegua, s. w. Peru	♂	126	98
<i>T. chiguanco chiguanco</i> , Huaral, w. Peru	5♂	126-133	102-109
<i>T. chiguanco conradi</i> , Limbani, s. Peru	2♂	135-136	115-118
<i>T. chiguanco conradi</i> , Puno, Titicaca, Peru	2♂	131-140	114-118
<i>T. chiguanco conradi</i> , Urubamba, Ft. Machu Picchu, Peru	3♂	133-138	115-119
<i>T. chiguanco conradi</i> , Accobamba, cen. Peru	2♂	135-141	119-120
<i>T. chiguanco conradi</i> , Oroya, cen. Peru	♂	144	120
<i>T. chiguanco conradi</i> , Chipa, cen. Peru	2♂	130-137	115-118
<i>T. chiguanco conradi</i> , Huancabamba, n. Peru	4♂	135-136	111-118
<i>T. chiguanco conradi</i> , El Paso, Azuay, Ec.	4♂	141-145	119-122
<i>T. chiguanco conradi</i> , Loja, Ec.	♂	136	115
<i>T. chiguanco conradi</i> , Mt. Chimborazo, Ec.	3♂	137-145	115-119
<i>T. chiguanco chiguanco</i> , Moquegua, s. w. Peru	♀	128	95
<i>T. chiguanco chiguanco</i> , Huaral, w. Peru	♀	130	103
<i>T. chiguanco conradi</i> , Limbani, s. Peru	2♀	130-138	118-119
<i>T. chiguanco conradi</i> , Chipa, cen. Peru	4♀	130-133	115-119
<i>T. chiguanco conradi</i> , El Paso, Azuay, Ec.	♀	133	112
<i>T. chiguanco conradi</i> , Mt. Chimborazo, Ec.	♀	136	119

(3551) *Hylocichla aliciae aliciae* (Baird)

Turdus aliciae BAIRD, Rep. Expl. & Surv. R. R. Pac., IX, 1858, p. 217 (West Northfield, Ill.); B. & T., 1885, p. 70 (Machay 1 ♀, Nov.).

Rio Suno, 1 ♂, 2 ♀ (March 9–12).

RANGE.—Breeds in eastern Canada and winters southward to Guiana and Ecuador and Peru.

(3553) *Hylocichla ustulata swainsoni* (Tsch.)

Turdus swainsonii TSCH., Faun. Per., 1846, p. 188 (New Jersey); SCL., 1858b, p. 451 (Gualaquiza; Cuenca); 1860c, p. 84 (Nanegal); B. & T., 1883, p. 538 (Chimbo); 1885, p. 70 (Mapoto and Machay); S. & F., 1899a, p. 3 (Gualaquiza, Nov., Dec., Jan.; Valle de Zamora, Dec.).

Turdus ustulatus swainsoni, HART., 1898, p. 479 (Paramba).

Turdus maranonicus, GOODF., 1901, p. 310 (Archidona) (= *Hylocichla ustulata swainsoni*; fide Hellm. in litt.).

Hylocichla swainsoni, MEN., 1911, p. 70 (Pachijal; Guallea); L. & R., 1922, p. 77 (Quito, March 1, Nov. 22, Dec. 4).

Santa Rosa, 1 ? (Dec. 2); Punta Santa Ana, 1 ♀ (Dec. 22); Sabanilla, 2 ♂, 1 ♀ (Nov. 10–15); Zamora, 7 ♂, 5 ♀ (Oct. 23–Nov. 24); below San José de Sumaco, 3 ♂, 6 ♀ (March 15–April 18); Rio Suno, 2 ♀ (Feb. 5–25); lower Sumaco, 1 ♀ (Jan. 25); upper Sumaco, 1 ♂ (Jan. 18); above Baeza, 5 ♂, 1 ♀ (Oct. 31–Nov. 21).

RANGE.—Breeds in northeastern United States and northward; winters as far south as northern Argentina.

The fact that all but two of the above-listed specimens were taken in eastern Ecuador indicates that this species migrates and winters in the interior of Ecuador rather than on the Pacific coast.

(3559) *Catharus fuscater fuscater* (Laf.)

Myioturdus fuscater LAFR., Rev. Zoöl., 1845, p. 341 (Bogotá).

Catharus fuscater, SCL., 1859a, p. 136 (Pallatanga); B. & T., 1884, p. 283 (Cayandeled); GOODF., 1901, p. 309 (above Mindo, 8,800 ft.).

Catharus berlepschi LAWR., Proc. U. S. Nat. Mus., X, 1887, p. 503 (Cayandeled, w. Ec.).

Huigra; Chunchi (Rhoads).

Above Mindo, 1 juv.; Cayandeled, 1 ♂ (type of *berlepschi*); El Chiral, 3 ♂; above Zaruma, 1 ♂; Salvias, 2 ♂; San Bartolo, 1 ♂, 1 ♀; Alamor, 1 ♀; Celica, 1 ♂, 2 ♀; Puente del Rio Quijos, 1 ♂.

RANGE.—Subtropical Zone: the species, Bolivia to Costa Rica; the race, eastern and western Ecuador, Colombia (and eastern Panama).

Lawrence's type of *berlepschi* is in much-worn, faded plumage, a fact which doubtless misled him into separating the Ecuadorean bird. Comparison of our Ecuadorean series with seven specimens from Santander, East Andes, Col., reveals no pronounced racial difference between the two series beyond a slight tendency toward a less intensely black crown in Ecuadorean birds, a character which finds its highest development in *C. c. caniceps* Chapm. of northwestern Peru.

(3561) ***Catharus dryas dryas* (Gould)**

Malacocichla dryas GOULD, P. Z. S., 1854, p. 285, pl. lxxv (Guatemala).

Catharus maculatus, SCL., 1860a, p. 64 (Pallatanga; Chillanes).

Catharus dryas, B. & T., 1883, p. 538 (Chimbo); 1884, p. 283 (Pedregal; El Placer; Cayandedel); HART., 1898, p. 479 (Chimbo).

Cerro Manglar Alto, 1 ♂ (1923); Chimbo, 1 ♀ (1922); El Chiral, 1 ♀ (1920); La Chonta, 1 ♂, 3 ♀ (1921); above Zaruma, 5 ♂, 1 ♀ (1913); Alamor, 6 ♂, 1 ♀ (1920-21); Las Piñas, 1 ♂, 1 ♀ (1921).

RANGE.—Subtropical Zone: the species, Bolivia to Guatemala; the race, (western Ecuador to Guatemala ?).

Specimens collected within four years show no observable change in the color of the underparts, which varies from pale orange-yellow to a somewhat deeper tone. Specimens collected eleven years ago have the underparts white, tinted with warm buff. This change is shown by comparing El Chiral, La Chonta, and Alamor birds collected in 1920 and 1921 with Zaruma specimens collected in 1913. It is also demonstrated by comparing our record of the color of the Zaruma birds made in March, 1914, with the color they exhibit today (July, 1924). The upperparts are slightly grayer in the older skins, the newer ones having a slight olivaceous cast. Under these circumstances it is obvious that, so far as color is concerned, comparisons designed to discover geographical variations must be made with freshly collected skins. Of true *dryas* I have only two old Guatemalan skins; both are nearly white below, but in pattern, that is, amount of spotting below, they seem to resemble western Ecuadorean specimens which, provisionally at least, may be known as *dryas dryas*.

(3561a) ***Catharus dryas maculatus* (Scl.)**

Malacocichla maculata SCL., P. Z. S., 1858, p. 64 (Napo); 1858d, p. 146 (Rio Napo).

Catharus dryas stolzmanni DOMAN., Bull. Acad. Sci. Cracow, 1918, p. 136 (Huambo, Peru).

RANGE.—Subtropical Zone; Bolivia to eastern Colombia.

Above Archidona, 1 ♂ (1923); below Oyacachi, 2 ♂ (1923); lower Sumaco, 1 ♀ (1924); below San José, 2 ♀ (1924); 'Napo,' 1 (1860–70). Peru: Chaupe, 2 ♂, 1 ♀ (1923); Huarandosa, 1 ♂, 1 ♀ juv. (1923). Bolivia: Incachaca, 1 ♂ (1915).

In general coloration these birds agree with comparable specimens from western Ecuador, but the spots below are blacker and more numerous, and there are arrow-shaped markings on the chin, which is usually immaculate or nearly so in true *dryas*. A Bolivian specimen shows these characters in a marked degree, but they are not so strongly developed in specimens from the East Andes of Colombia. An old 'Napo' bird is nearly white below and the spots are much faded, but in males the presence on the chin and upper throat of black spots is a diagnostic marking.

FAMILY VIREONIDÆ. VIREOS

(3563) *Vireosylva olivacea* (Linn.)

Muscicapa olivacea LINN., Syst. Nat., I, 1766, p. 327 (Carolina).

Rio Suno, 1 ♀ (Feb. 13); lower Rio Suno, 3 ♂, 3 ♀ (March 7–15).

RANGE.—Breeds in Temperate North America; winters as far south as Bolivia.

(3564) *Vireosylva flavoviridis flavoviridis* Cass.

Vireosylva flavoviridis CASS., Proc. Acad. Nat. Sci. Phila., 1851, p. 152 (Panama).

Vireo flavoviridis, MEN., 1911, p. 70 (Santo Domingo).

Below San José, 2 ♂, 2 ♀ (March 11–April 11); lower Rio Suno, 1 ♂, 3 ♀ (March 7, 8).

RANGE.—Tropical Zone; Bolivia to Mexico (*V. f. forreri*, Tres Marias Is., w. Mex.).

(3566) *Vireosylva chivi chivi* (Vieill.)

Sylvia chivi VIEILL., Nouv. Dict. d'Hist. Nat., XI, 1817, p. 174 (Paraguay).

Below San José, 1 ♀.

RANGE.—Tropical Zone: the species, Argentina to Colombia; the race, Argentina north to Bahia and eastern Ecuador.

Specimens from the Chinchipe Valley, northern Peru, as well as this San José bird, in their dull colors and small size agree with true *chivi*.

(3567) *Vireosylva chivi griseobarbata* Berl. & Tacz.

Vireosylva chivi griseobarbata BERL. & TACZ., P. Z. S., 1883, p. 541 (Chimbo, w. Ec.).

Vireosylva agilis, SCL., 1860a, p. 64 (Pallatanga); 1860d, p. 273 (Babahoyo).

Vireosylva chivi, S. & F., 1899a, p. 10 (La Concepcion); GOODR., 1901, p. 316 (San Nicolas).

Vireosylva griseobarbata, S. & F., 1899a, p. 10 (Babahoyo; Vines).

Vireo chivi vividior, L. & R., 1922, p. 77 (Guala).

Esmeraldas, 3♂, 3♀; Manaví, 2♂, 1♀; Cuaque El Destino, 1; Mindo, 5♂, 2♀; La Plata Is., 3♂, 3♀; Chongon Hills, 1♂; Puna Is., 2♂; Pullango, 1♂.

RANGE.—Tropical Zone, western Ecuador.

It is unexpected to find the western Ecuadorean form of *Vireosylva chivi* more closely related to *vividior* of northern South America, from northeastern Colombia eastward, than it is to *V. c. caucæ* of western Colombia. From *vividior*, *griseobarbata* differs only in the greater extent of the greenish yellow below, particularly on the sides, and in its smaller bill (culmen 16 to 17 mm.). The western Colombia bird, of which I have eight specimens, is much darker above and with less greenish yellow below than either *vividior* or *griseobarbata*, and in color is nearer true *chivi*, but averages even darker above than that form.

(3568a) *Vireosylva leucophrys leucophrys* (Laf.)

Hylophilus leucophrys LAFR., Rev. Zool., 1844, p. 81 (Colombia), see Bangs and Penard, Proc. Biol. Soc. Wash., XXXV, 1922, p. 226.

Vireosylva josephæ, B. & T., 1885, p. 75 (Machay; Mapoto; Baños).

Sabanilla, 1♂, 1♀; Baeza, 1♀.

RANGE.—Subtropical Zone: the species, Bolivia to Costa Rica; the race, Colombia, eastern Ecuador and Peru.

There is no constant difference in the general coloration of specimens of this species from Peru, Ecuador, and Colombia, but western Ecuadorean birds average richer in general coloration and, except in very worn plumage, have the crown fuscous-black, while in specimens from the East Andes it is fuscous.

In the coloration of the upperparts, thirty-odd specimens from the eastern Andes of Colombia, Ecuador, Peru, and Bolivia are essentially alike, and six topotypes of *mirandæ* Hellm. from Venezuela differ but little if any from them above. Five Bolivian specimens, including four from Incachaca (topotypes of *latissima* Todd), average paler below than eastern Colombian birds, but can be matched by them, while the specimens of *mirandæ* have the underparts still paler.

(3568) *Vireosylva leucophrys josephæ* (Scl.)

Vireo josephæ SCL., P. Z. S., 1859, p. 137, pl. cliv (Pallatanga, Ec.); 1860c, p. 85 (Nanegal); 1860f, p. 427 (Pallatanga); L. & R., 1922, p. 77 (Gualea).

Vireosylva josephæ, B. & T., 1884, p. 287 (Pedregal; Cayandeled); Goodf., 1901, p. 316 (Mindó; Canzacota).

Huigra; Pagma Forest (Rhoads).

Naranjo, 1 ♂; Rios Coco and Chimbo, 2 ♂; Pallatanga, 1 ♀; El Chiral, 2 ♂, 1 ♀; Zaruma, 2 ♂, 1 ♀; Punta Santa Ana, 1 ♂; San Bartolo, 1 ♂, 1 ♀; Las Piñas, 1 ♀; Celica, 3 ♂; Alamor, 5 ♂, 4 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to Costa Rica; the race, western Ecuador and northwestern Peru.

This race is characterized by its richer coloration and fuscous black cap. The general tone of color varies and is subject to change with wear, but the dark blackish cap is usually diagnostic. Palambra (Peru) specimens are typical of *josephæ* but a series from Chaupe approaches *leucophrys*.

(3579a) *Pachysylvia semibrunnea leucogastra* Chapm.

Pachysylvia semibrunnea leucogastra CHAPM., Amer. Mus. Novit., No. 143, 1924, p. 1 (below San José de Sumaco, Ec.).

Subspecific Characters.—Similar to *P. s. semibrunnea* (Lafr.) of Colombia, but brown of the head extending farther on the back; underparts posterior to the faint brownish pectoral band whiter; flanks less strongly washed with greenish.

RANGE.—Subtropical Zone: the species, Colombia and eastern Ecuador; the race, eastern Ecuador.

Although found in the West Andes of Colombia, this species is unknown from western Ecuador.

(3582) *Pachysylvia fuscicapilla fuscicapilla* (Scl. & Salv.)

Hylophilus fuscicapillus SCL. & SALV., P. Z. S., 1880, p. 155 (Sarayacu, Ec.); SCL., Ibis, 1881, p. 303, pl. x, fig. 2 (crit.).

Rio Suno, 1 ♂, 2 ♀; below San José, 1 ♀.

RANGE.—Tropical Zone: the species, Amazon Valley; the race, upper Amazon.

The lower Amazon race, *P. f. albigula* Chapm., proves to be brighter brown above with a paler abdomen and whiter throat. A specimen from La Merced, central Peru, is duller above than true *fuscicapilla*, the difference doubtless being of racial significance.

(3586) ***Pachysylvia ochraceiceps bulunensis* (Hart.)**

Hylophilus bulunensis HART., Nov. Zoöl., 1902, p. 617 (Bulún, Ec.).

RANGE.—Tropical Zone: the species, Bolivia to Mexico; the race, northwestern Ecuador to eastern Panama.

From Ecuador only the type of this species is known, but we have two specimens from Tacarcuna, eastern Panama, which are evidently referable to it, and Bangs and Barbour record three specimens from Sapo, eastern Panama. This race is intermediate between *ochraceiceps brevipennis* Nels. and *o. ferrugineifrons* (Scl.) of upper Amazonia, its rufescent wings and tail making it somewhat nearer the latter. It is, however, near enough to both to indicate their intergradation.

(3588) ***Pachysylvia ochraceiceps ferrugineifrons* (Scl.)**

Hylophilus ferrugineifrons SCL., P. Z. S., 1862, p. 110 (Bogotá); S. & F., 1899a, p. 10 (Valle del Santiago).

Rio Suno, 8♂, 3♀; below San José, 2♂, 3♀.

RANGE.—Tropical Zone, Bolivia to the lower Orinoco.

We have no Colombian specimens, but those from Ecuador agree with three from Suapure, Ven. Three specimens from southeastern Peru and three from Bolivia (Rio Espiritu Santo) have the forehead somewhat paler and the back averages lighter green, but the differences are bridged by individual variation and are not, in my opinion, of racial value. As stated above, I consider *bulunensis* a connectant between this form and *ochraceiceps*.

(3594) ***Pachysylvia olivacea* (Tsch.)**

Hylophilus olivacea TSCH., Arch. für Naturg., 1844, p. 284 (Peru)

Hylophilus olivaceus, B. & T., 1885, p. 75 (Mapoto).

Below Oyacachi, 1♂; below San José, 1♀.

RANGE.—Subtropical Zone; central Peru and eastern Ecuador.

I am not quite sure that these two birds are the same. The one from below Oyacachi has the feet brown instead of horn, the abdomen is paler and the breast yellower than in the San José bird. Stolzmann records the species from Chirimoto (5,400 ft.) and Huambo (3,700 ft.), in Peru.

(3595) *Pachysylvia minor* (Berl. & Tacz.)

Hylophilus minor BERL. & TACZ., 1883, p. 542 (Chimbo, Ec.); HART., 1902, p. 617 (Paramba; Lita; Pambilar).

Bucay (Rhoads).

Esmeraldas, 1 ♂, 1 ♀; Bucay, 1 ♂; Chimbo, 1 ♂; Naranjo, 1; La Chonta, 2 ♂; Santa Rosa, 1 ♂; Portovelo, 2 ♂; Punta Santa Ana, 1 ♂; Las Piñas, 2 ♂; Guainche, 1 ♂.

RANGE.—Tropical Zone; western Ecuador and western Colombia.

A distinct species which is apparently most nearly related to *P. decurtata* of Central America.

(3596) *Vireolanius leucotis leucotis* (Swains.)

Malaconotus leucotis SWAINS., Anim. in Menag., 1838, p. 341 ("Africa", errore. Peru, Hellm. in litt.).

Macas region, 1; below San José de Sumaco, 1 ♂.

RANGE.—Tropical Zone: the species, Peru to Cayenne; the race, eastern Peru and eastern Ecuador to Guiana.

The Macas specimen has practically no silver-gray below the auriculars, but the San José bird has a broad silver-gray band between the gray malar region and the ear-coverts. The latter bird is slightly bluer above but in other respects agrees with one from Guiana in which the subauricular stripe is well developed. A male from Peréné, central Peru, is without a subauricular stripe and has the forehead tinged with green, the underparts with olive.

(3598) *Vireolanius leucotis mikettæ* Hart.

Vireolanius mikettæ HART., Bull. B. O. C., XI, 1900, p. 38 (Paramba).

RANGE.—Tropical Zone; western Ecuador; known only from Paramba.

We have no specimens of this race which is evidently very near true *leucotis*.

(3604) *Cyclarhis gujanensis gujanensis* (Gmel.)

Tanagra gujanensis GMEL., Syst. Nat., I, 1789, p. 893 ("Gujanae").

Cyclarhis gujanensis, BRAB. & CHUBB, Bds. So. Am., I, 1912, p. 352 (e. Ecuador).

RANGE.—Tropical Zone; the species, Guiana to Peru.

This species is listed by Brabourne and Chubb, as occurring in eastern Ecuador but we have no specimens of it from that country.

(3607) *Cyclarhis virenticeps* *Scl.*

Cyclorhis virenticeps SCL., P. Z. S., 1860, p. 274, p. 164 (Babahoyo, Ec.); Tacz., 1879, p. 319 (Tumbez); B. & T., 1883, p. 542 (Guayaquil); S. & F., 1899a, p. 10 (Balzar).

Chone, 4♂, 1♀; Chongoncito, 1♀; Guayaquil, 3♀; Duran, 1♀; La Puente, 1♂; El Chiral, 1♀; Santa Rosa, 1♂, 1♀; Portovelo, 3♂, 1♀; Punta Santa Ana, 2♂; Casanga, 1♂, 4♀; Salvias, 1♂, 1♀; Las Piñas, 1♀; Alamor, 1♂, 1♀; Guainche, 1♂; Rio Pullango, 1♂; Loja, 3♂, 1♀.

RANGE.—Tropical Zone; Equatorial Arid Fauna; northwestern Peru and southwestern Ecuador.

This is a Pacific coast representative of *C. contrerasi* Tacz. of the Marañon Valley, from which it differs chiefly in the absence of chestnut on the center of the crown, brighter and usually wider yellow chest-band and buffier sides. One (No. 130172) of four specimens from Loja has the feathers of the center and back of the crown margined with chestnut, and in this respect resembles *contrerasi*, but the remaining three, two of which were taken on the same day as No. 130172, are typical of *virenticeps*.

Specimens from Peru west of the Andes (Milagros; Palambla) are true *virenticeps*, while five examples from Chaupe and Perico on the Chinchipe are, as might be expected, *contrerasi*, though they have the breast-band brighter yellow and the sides buffier than a single specimen from Leimabamba. The former, however, are doubtless more nearly typical than the latter. I am in doubt, therefore, whether the characters of No. 130172 represent individual variation or intergradation with *contrerasi*.

(3611) *Cyclarhis nigrirostris nigrirostris* *Lafr.*

Cyclorhis nigrirostris LAFR., Rev. Zoöl., 1842, p. 133 (Colombia); GOODF., 1901, p. 316 (Baeza).

Baeza, 3♂, 1♀; below Oyacachi, 1 im.

RANGE.—Subtropical Zone: the species, Colombia and Ecuador; the race, Colombia (except southwestern part) and northeastern Ecuador.

The Baeza birds have the basally pale mandible and bluish gray frontal band of true *nigrirostris*. The immature bird has a nearly wholly black bill while the front half of the crown and the postocular stripe are bright ochraceous tawny. It is unlike any other specimen of *nigrirostris* in a series of twenty-odd or more, but, I assume, represents the immature plumage of that species.

(3611a) *Cyclarhis nigrirostris atirostris* Scl.

Cyclorhis atirostris SCL., Ibis, 1887, p. 324, pl. x ("Camino de Manaví"—Hellm. in litt.).

Cyclorhis nigrirostris, GOODF., 1901, p. 316 (Milligalli; Gualea).

Cyclarhis nigrirostris mindoensis CHAPM., Amer. Mus. Novit., No. 143, 1924, p. 1 (Mindo, Ec.).

Mindo, 2 ♂, 1 ♀.

RANGE.—Subtropical Zone; western Ecuador and southwestern Colombia (Ricaurte; Nariño).

Dr. Hellmayr, who has examined the type, a specimen partly in the buffy juvenal plumage, writes me that it is not separable from Mindo and Gualea specimens, and hence my *mindoensis* is not separable from it. This belief is further confirmed by the fact that the type described simply as from "Æquatoria" is labeled as having come from the road to Manaví.

FAMILY MNIOTILTIDÆ. WOOD-WARBLERS

(3612) *Mniotilta varia* (Linn.)

Motacilla varia LINN., Syst. Nat., I, 1776, p. 333 (Santo Domingo).

Baeza, 1 ♂ ad., Nov. 23.

RANGE.—Breeds in eastern North America; winters as far south as Ecuador.

This appears to be the most southern record for this species.

(3613) *Protonotaria citrea* (Bodd.)

Motacilla citrea BODD., Tabl. Pl. Enl., 1783, p. 44 (Louisiana).

Esmeraldas, 1 ♂ (Nov. 7).

RANGE.—Breeds chiefly in the southeastern United States; winters south as far as Ecuador. Not before recorded from Ecuador.

(3619) *Compsothlypis pitiayumi pacifica* (Berl. & Tacz.)

Parula pitiayumi pacifica BERL. & TACZ., P. Z. S., 1884, p. 286 (Surupata, Ec.), MEN. 1911, p. 71 (Gualea); L. & R., 1922, p. 77 (Mindo; Gualea).

Parula brasiliana, SCL., 1859a, p. 137 (Pallatanga); 1860c, p. 84 (Nanegal); 1860d, p. 273 (Babahoyo); 1860e, p. 291 (Esmeraldas).

Parula pitiayumi, LAW., 1869, p. 236 (Puna Is.); TACZ., 1878, p. 319 (Tumbez); B. & T., 1883, p. 541 (Chimbo); HART., 1898, p. 479 (Chimbo); S. & F., 1899a, p. 7 (Vinces; Balzar).

Compsothlypis pitiaiyumi pacifica, CHAPM., The Auk, XLII, 1925, p. 203 (Monog.). Bucay (Rhoads).

Esmeraldas, 2♂, 3♀; Manaví, 3♀; La Plata Is., 1♂, 1♀; Bahía de Caraquez, 2♂; Chongoncito, 1♂, 1♀; Guayaquil, 1♂; Duran, 1♂, 1♀; Bucay, 4♂; Coco and Chimbo, 1♂, 1♀; Naranjo, 1♀; Puna Is., 3♂; Santa Rosa, 1♂, 3♀; La Puente, 1♂; La Chonta, 1♂, 1♀; El Chiral, 1♂; Zaruma, 4♀; Portovelo, 3♀; Casanga, 1♂, 1♀; Punta Santa Ana, 1♂, 3♀; Salvias, 1♀; San Bartolo, 2♂; Lunamá, 1♂; Guainche, 1♂, 1♀; Río Pullango, 2♂; Cebollal, 6♂; Celica, 1♂, 2♀; Alamor, 6♂, 4♀. Peru: Paetillas, 7♂, 2♀; Palambla, 3♂, 3♀.

RANGE.—Tropical Zone: the species, Argentina to Texas; the race, western Ecuador and southwestern Colombia. (Fig. 13, p. 89.)

This form is distinguished by its small size and rich coloration, particularly of the breast. It is very near *C. p. speciosa* of the subtropics of western Panama to Nicaragua, but the latter has no white on the middle wing-coverts. No form of this species has been recorded from the Tropical Zone of western Colombia north of Nariño or from Panama. In the Subtropical Zone of the West Andes *C. p. elegans* occurs. The relationships of the group are discussed in 'The Auk' (*loc. cit.*).

(3619a) *Compsothlypis pitiaiyumi alarum* Chapm.

Compsothlypis pitiaiyumi alarum CHAPM., Amer. Mus. Novit., No. 143, 1924, p. 2 (Chaupe, 6,100 ft., east of Huancabamba, northern Peru); The Auk, XLII, 1925, p. 204 (Monog.).

Parula pitiaiyumi, B. & T., 1885, p. 74 (Mapoto; Machay); GOODF., 1901, p. 314 (Baeza).

Zamora, 3; Sabanilla, 1; lower Mt. Sumaco, 1; below Oyacachi, 3.

RANGE.—Subtropical Zone; eastern Ecuador and northeastern Peru.

Subspecific Characters.—General coloration much as in *C. p. elegans* (Todd) of Venezuela and Colombia, but median wing-coverts wholly without, or with but a trace of white, the greater coverts with the white much reduced; wing longer than in any other known race of the species.

(3620) *Dendroica aestiva aestiva* (Gmel.)

Motacilla aestiva GMEL., Syst. Nat., I, 1879, p. 996 (Canada); L. & R., 1922, p. 77 (Quito, Feb. 8, April 20; Tumbaco, Aug. 10; Chinguil, April 20).

Dendroica marcomi [sic], S. & F., 1899a, p. 8 (La Concepcion, April).

Dendroica aestiva, GOODF., 1901, p. 314 (Archidona).

Esmeraldas, 1♂ ad. (Nov. 6); Chone, 1♂ ad. (Dec. 29), 1♀ ad. (Dec. 29); Macas region, 1♂ ad.

RANGE.—Breeds in North America; winters as far south as Ecuador.

(3621) *Dendroica petechia æquatorialis* Sund.

Dendroica petechia æquatorialis SUND., Cefv. K. Vet. Akad. Stockh., XXVI, 1870, p. 609 (Guayaquil, w. Ec.).

Dendroica aureola, SCL., 1860e, p. 291 (Esmeraldas); Tacz., 1877, p. 744 (Santa Luzia); S. & F., 1899a, p. 8 (Savana de Guayaquil; Estero Carnero, Puntilla Santa Elena).

Esmeraldas, 2♂; Bahia de Caraques, 1♂; coast of Manaví, 1♂, 1♀; Jambeli Is., 5♂, 2♀; Puna Is., 1♂, 2♀.

RANGE.—Coasts of Ecuador and southwestern Colombia.

Restricted to the mangroves (*Rhizophora*). I have already called attention to the close relationship of this race with the Galapagan *D. p. aureola*, and to the lack of records of this species on the Pacific coast of Colombia north of Tumaco.¹

The resemblance of highly colored specimens of *æquatorialis* to *erithachorides* of Panama is noteworthy.

(3628) *Dendroica cerulea* Wils.

Dendroica cerulea WILS., Amer. Orn., II, 1817, p. 141, pl. xvii, fig. 5 (Pennsylvania).

Rio Suno, 1♀ (March 1); below San José, 1♂ ad., 2♀ (March 30, 31); lower Sumaco, 1♂ ad. (Jan. 11); below Oyacachi, 2♂ ad. (Feb. 3), 1♂ ad. 1♀ (Aug. 10).

RANGE.—Breeds in eastern United States; winters south as far as Bolivia.

The occurrence of this migrant in Ecuador as early as August 10 is noteworthy.

(3629) *Dendroica fusca* (P. L. S. Müll.)

Motacilla fusca P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 175 (Guiana).

Sylvicola blackburniæ, SCL., 1854, p. 111 (Quijos).

Rhimamphus blackburniæ, SCL., 1858a, p. 64 (Napo).

Dendroica blackburniæ, SCL., 1860a, p. 64 (Pallatanga); 1860c, p. 84 (Nanegal); HART., 1898, p. 480 (Paramba).

Dendroica blackburniæ, B. & T., 1884, p. 286 (Cayandeled); 1885, p. 74 (Machay; Mapoto; Baños); S. & F., 1899a, p. 8 (Pun, Feb.); GOODF., 1901, p. 314 (Papallacta, abundant, Feb.); L. & R., 1922, p. 78 (Quito, March 4, May 10; Tumbaco, Feb. 10, April 6; road to Nanegal, April 4).

Punta Santa Ana, 1♂ (Dec. 20); Guayaba, 1♀ (Nov. 21); Sabanilla, 1♂ (Nov. 8), 2♀ (Nov. 21); Tambillo, 2; Zuna, 1; Sumaco, 3♂ (Dec. 27, Jan. 5), 2♀ (Jan. 5, 8); Baeza, 3♂, 1♀ (Nov. 3); below Oyacachi, 2♀ (Jan., Nov.); Tumbaco, 1♀ (Oct. 12).

RANGE.—Breeds in eastern North America; winters as far south as Peru.

This is evidently a common winter resident in both eastern and western Ecuador.

¹ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 545.

(3631) *Dendroica striata* (Forst.)

Muscicapa striata FORST., Philos. Trans., LXII, 1772, pp. 406, 428 (Fort Severn; Hudson Bay).

Dendroica striata, GOODF., 1901, p. 314 (Archidona).

Rio Suno, 1 ♂ ad., 2 ♀; below San José, 1 ♂, 1 ♀ (March 7–April 10).

RANGE.—Breeds in northern North America; winters south to Ecuador; on one occasion taken in Chile.

(3634) *Oporornis philadelphia* (Wils.)

Sylvia philadelphia WILS., Amer. Orn., II, 1810, p. 101, pl. xiv, fig. 6 (near Philadelphia, Pa.).

Geothlypis philadelphia, B. & T., 1885, p. 74 (Mapoto); GOODF., 1901, p. 314 (Papallacta).

Below Oyacachi, 1 ♀ im. (Jan. 17).

RANGE.—Breeds in eastern North America; winters southward to Ecuador.

(3637–8) *Seiurus noveboracensis* (Gmel.)

Motacilla noveboracensis GMEL., Syst. Nat., I, 1789, p. 958 (Louisiana).

Seiurus noveboracensis notabilis RIDGW., Proc. U. S. N. M., III, 1880, p. 12 (Como Lake, Wyo.).

Esmeraldas, 1 ♂, 4 ♀ (Nov. 1–Dec. 13).

RANGE.—Breeds in northern North America; winters south to Ecuador; not before recorded from Ecuador.

Both races of this species seem to be represented by these specimens but I do not venture to make definite identifications.

(3640) *Geothlypis semiflava semiflava* ScL.

Geothlypis semiflava SCL., P. Z. S., 1860, p. 273 (Esmeraldas, Ec.); 1860e, p. 291 (Esmeraldas); B. & T., 1883, p. 541 (Chimbo); 1884, p. 287 (El Placer); HART., 1898, p. 479 (Paramba); S. & F., 1899a, p. 8 (Vinces); GOODF., 1901, p. 314 (San Nicolas).

Bucay (Rhoads).

Esmeraldas, 7 ♂, 2 ♀; Manaví, 1 ♂, 1 ♀; Bucay, 5 ♂, 1 ♀; Chimbo, 1 ♂; Naranjo, 1 ♂; Portovelo, 1 ♂, 1 ♀.

RANGE.—Tropical Zone; western Ecuador and western Colombia.

Represented from Honduras to Costa Rica by the very closely allied *G. s. bairdi*.

(3642) *Geothlypis æquinoctialis auricularis* Salv.

Geothlypis auricularis SALV., P. Z. S., 1883, p. 420 (Callao, Peru); S. & F., 1899a, p. 8 (Vinces).

Geothlypis poliocephala, Tacz., 1877, p. 319 (Tumbez).

Bucay; Huigra (Rhoads).

Chone, 4♂, 1♀; Bucay, 2♂; Portovelo, 1♂.

RANGE.—Tropical Zone: the species, Argentina to the Caribbean; the race, coast of Peru and Ecuador.

Agrees with a comparable topotypical series. I have seen no specimens from the Marañon.

(3647) *Wilsonia canadensis* (Linn.)

Muscicapa canadensis LINN., Syst. Nat., I, 1766, p. 327 (Canada).

Myiodioides canadensis, SCL., 1854, p. 111 (Quijos); 1858a, p. 64 (Napo); 1858b, p. 451 (Gualaquiza; Zamora); B. & T., 1885, p. 74 (Machay; Mapoto); S. & F., 1899a, p. 8 (Valle del Zamora, Dec.; Valle del Rio Santiago, March); GOODF., 1901, p. 314 (Archidona).

Zamora, 1♂ (Nov. 27), 3♀ (Nov. 25–30), 1 (Nov. 25); Sabanilla, 1♂ (Nov. 14), 2♀ (Nov. 13, 18); San José, 2♂ (April 1–4), 2♀ (March 3, April 2); Sumaco, 6♂ (Dec. 21, Feb. 2), 4♀ (Jan. 5–14); Rio Suno, 7♂ (Feb. 3, March 20), 2♀ (Feb. 1–8); Baeza, 4♂ (Oct. 8, Nov. 23), 1♀ (Nov. 24); below Oyacachi, 5♂ (Jan. 12–18), 1♂ im. (Aug. 9), 1♀ (Jan. 18); 1♀ im. (Aug. 9).

RANGE.—Breeds in eastern North America; winters as far south as Peru.

This is evidently a common winter visitant in eastern Ecuador. The capture of an immature male and female below Oyacachi on August 9 is a surprisingly early date.

(3648) *Setophaga ruticilla* (Linn.)

Motacilla ruticilla LINN., Syst. Nat., I, 1758, p. 186 (Virginia).

Setophaga ruticilla, SCL., 1854, p. 111 (Quijos); 1860c, p. 48 (Perucho); 1860e, p. 292 (Esmeraldas); GOODF., 1901, p. 315 (Ibarra, June, 2 specimens; Mindo, Nov.; Papallacta, Feb.).

Esmeraldas, 3♂ ad. (Oct. 30; Nov. 4, 8), 2♀ (Oct. 18; Dec. 10); Zamora, 1♀ (Dec. 4); below San José, 1♂ (March 15).

RANGE.—Breeds in Temperate North America; winters southward to Ecuador and British Guiana.

(3649) *Myioborus verticalis pallidiventris* (Chapm.)

Setophaga verticalis pallidiventris CHAPM., Bull. A. M. N. H., XII, 1899, p. 153 (Quebrada Seca, Caripe, Ven.).

Setophaga verticalis SCL., 1859a, p. 137 (Pallatanga); 1860c, p. 84 (Perucho);

Puellaro); B. & T., 1883, p. 541 (Chimbo); 1884, p. 287 (Cayandede); 1885, p. 75 (Mapoto; Machay); HART., 1898, p. 480 (Ibarra); S. & F., 1899a, p. 10 (Niebli); GOODR., 1901, p. 314 (w. Pichincha; Papallacta).

Myioborus verticalis, MEN., 1911, p. 71 (Mindó);*L. & R., 1922, p. 78 (near Niebli; Tumbaco; below Nono; Chinguil).

Huigra; junction Chanchan and Chiguancay; Pagma Forest; river trail to Cumbaya (Rhoads).

Mindó, 3♂, 1♀; Rios Coco and Chimbo, 1♂, 2♀; La Puente, 1♂; El Chiral, 2♂, 1♀; Zaruma, 2♂, 4♀; Punta Santa Ana, 1; Guachanamá, 1♂; San Bartolo, 5♂; Alamor, 6♂, 4♀; Cebollal, 1♂; Celica, 3♂, 1♀; Loja, 4♂, 2♀; Zamora, 1♂, 1♀; Sabanilla, 2♂; below San José, 1♂, 4♀; lower Sumaco, 3♂, 3♀; upper Sumaco, 2♂; Baeza, 3♂, 1♀; below Oyacachi, 6♂, 3♀.

RANGE.—Chiefly Subtropical Zone; the species, Bolivia to Costa Rica; the race, northern Peru, Ecuador, Colombia, and Venezuela.

Examination of somewhat over two hundred specimens of this species, representing most of its range, reveals certain mass differences which are evident when series is compared with series, but are not as yet sufficiently established to appear equally developed in all the individuals composing a series. Thus, specimens from Bolivia to eastern Ecuador are richly colored below and have, as a rule, a spot of deeper yellow on the breast. Western Ecuadorean birds are decidedly paler below and have, usually, no black on the forehead or sides of the crown. Doubtless some day they will be separated racially. Western Colombian birds are the most deeply colored below of the series, some specimens being quite as rich as examples of *auriantiacus* from Chiriqui. Venezuelan specimens are paler, those from the Caripe region, including the type of my *pallidiventris*, being the palest of the lot. Viewed in the light of all this material, I should not propose the separation of this form on the basis of its light yellow underparts, though, in view of its probable isolation, it is not improbable that this pale yellow color may be constant in extreme northeastern Venezuela.

However this may be, there appears to be one character whereby birds from northern Peru northward may be distinguished from those from southern Peru southward, and that is the amount of white on the tail. In true *verticalis* from the Subtropical Zone of Bolivia north to southeastern Peru, the white on the inner vane of the two outer rectrices, measured along the shaft, averages respectively 11.5 and 16.5 mm., while the corresponding measurements in Colombian birds are 23 and 32 mm., and in the type of *pallidiventris* 18 and 25 mm. Until, therefore, birds from north of Peru are found to represent more than one race, they apparently should bear the name *pallidiventris*.

Measurements in males of the extent of white on inner vane of outer two rectrices measured along the shaft

	Outer Rectrix mm.	Second Rectrix mm.
Bolivia: Yungas; Roquefalda . . . 7	10-14 (11)	13-19 (16)
Peru: Santo Domingo 4	12-14 (12.7)	17-18 (17.2)
Peru: Idma, Urubamba 2	17	18
Peru: Utcuyacu, Junin 1	15	20
Eastern Ecuador: below Oyacachi 5	18-20 (19.8)	25-29 (27.6)
Western Ecuador: Alamor 5	15-20 (17)	19-26 (22.2)
Colombia: East Andes 7	17-26 (23)	27-40 (32)
Venezuela: Cotiza, Caracas 1	17	25
Venezuela: Quebrada Seca (type) 1	18	25

(3653) *Myioborus bairdi* (Salv.)

Setophaga bairdi SALV., Ibis, 1878, p. 317, pl. viii., fig. 1 (Sical, Ec.); B. & T., 1884, p. 286 (Cechce); 1885, p. 75 (San Rafael; Mapoto); HART., 1898, p. 480 (Mount Cayambe, at above 12,000 ft.); S. & F., 1899a, p. 10 (Huaca; El Troje; Chaupi; Chinguil; Frutillas; Lloa; Niebli; Pululagua; Papallacta); GOODF., 1901, p. 315 (w. Corazon; above Milligalli (8,000 ft.); w. Pichincha up to 12,000 ft.; Papallacta).

Myioborus bairdi, MEN., 1911, p. 72 (Lanlin; crater Pichincha); L. & R., 1922, p. 78 (Chinguil; below Nono).

Hacienda Garzon (Rhoads).

Pichincha, 1 ♂, 4 ♀; Yanacocha, 1 ♂, 2 ♀; Verdecocha, 1 ♂, 1 ♀; Urbina, 1 ♂; Taraguacocha, 1 ♂, 4 ♀, 1 ?; above Loja, 1 ♂, 1 ♀; Tambillo, 5; Zuna, 2; Rio Upano, 1; Asilan, 1; upper Sumaco, 3 ♂, 3 ♀; above Baeza, 4 ♂, 2 ♀; Rio Sardinas, 1 ♀; below Papallacta, 1 ♂, 3 ♀; Oyacachi, 4 ♂, 2 ♀. Peru: El Tambo, 1 ?.

RANGE.—Humid Temperate Zone; northern Peru, eastern and western Ecuador.

There is much variation in the head markings. In some specimens the chestnut crown-patch is much reduced in size, when the black forehead is correspondingly enlarged. In a Baeza female and a Sumaco male the frontal band is largely yellow, the black being reduced to scattered feathers, thus approaching *ruficoronatus*. In two Yanacocha females the frontal yellow is almost concealed by black.

(3654) *Myioborus ruficoronatus* (Kaup)

Setophaga ruficoronata KAUP, P. Z. S., 1851, p. 49 (Colombia); SCL., 1858c, p. 550 (Matos); 1860b, p. 74 (Lloa); SALV., Ibis, 1878, p. 316, pl. vii, fig. 1 (crit.); B. & T., 1885, p. 75 (San Rafael).

Oyacachi, 2 ♂.

RANGE.—Humid Temperate Zone, Ecuador (Colombia and Peru ?).

Salvin (*loc. cit.*) states that the type of this species in the Derby Museum is labeled as having been obtained by Delattre at Cali, Col. It may, possibly, have come from the Farallones of the West Andes above Cali, but it has not been obtained in that region by subsequent explorers. Specimens are recorded in the British Museum Catalogue from the foot of Pichincha and Yanayacu, Ec., and 'Pasto,' Ec. (= Colombia ?). Our two specimens agree with Salvin's plate.

(3660) ***Myiothlypis nigrocristatus* (Lafr.)**

Trichas nigro-cristatus LAFR., Rev. Zool., 1840, p. 230 (Santa Fé de Bogotá).

Basileuterus nigricristatus, SCL., 1859b, p. 440 (Rio Napo); B. & T., 1884, p. 286 (Cayandeled; Cechce); 1885, p. 74 (San Rafael); S. & F., 1899a, p. 9 (Pun).

Basileuterus nigricapillus SCL., 1860b, p. 74 (Guápulo).

Basileuterus nigrivertex, GOODF., 1901, p. 315 (Intag; Gualaes; Milligalli).

Myiothlypis nigricristatus, MEN., 1911, p. 72 (Chorillos; Lloa); L. & R., 1922, p. 78 (road to Nanegal; below Lloa).

Chunchi; Hacienda Garzon; below Cumbaya, 7,200 ft. (Rhoads).

Yanacocha, 2♂; above Baeza, 4♂, 4♀; Macas region, 9; upper Sumaco, 3♂, 2♀.

RANGE.—Humid Temperate Zone of Ecuador, Colombia, and western Venezuela.

I can discover no constant difference between Ecuadorean and Colombian specimens. A single immature male from El Tambo, north-western Peru, may represent *nigrivertex* (Salv.). It differs from *nigrocristatus* of the same age only in being brighter green above and somewhat clearer yellow below.

(3663) ***Basileuterus luteoviridis luteoviridis* (Bonap.)**

Myiothlypis luteo-viridis BONAP., Consp. Av., II, 1850, p. 311 (Bogotá).

Basileuterus luteoviridis, S. & F., 1899a, p. 8 (Pun).

Zuna, Rio Upano, 3; Tambillo, Rio Upano, 1; upper Sumaco, 1♂.

RANGE.—Humid Temperate Zone, Bolivia to Colombia.

These specimens agree with others from Colombia.

(3669) ***Basileuterus tristriatus tristriatus* (Tsch.)**

Myiodiodes tristriatus TSCH., Arch. für Naturg., 1844, p. 283 (Peru).

Sabanilla, 1♂, 1♀.

RANGE.—Subtropical Zone: the species, Bolivia to Venezuela and Costa Rica; the race, Urubamba Valley, Peru, to Zamora Valley, Ecuador.

The relationships of the group are discussed in Amer. Mus. Novit., No. 143, 1924, pp. 4 to 6.

(3669a) *Basileuterus tristriatus auricularis* Sharpe

Basileuterus auricularis SHARPE, Cat. Bds. B. M., X, 1885, p. 386 (Bogotá); S. & F., 1899a, p. 9 (Gualea); GOODF., 1901, p. 315 (Gualea; Canzacota).

Basileuterus tristriatus, B. & T., 1884, p. 286 (Cayandede; Pedregal; El Placer); MEN., 1911, p. 72 (Mindo); L. & R., 1922, p. 78 (Mindo; road to Nanegal).

Junction of Chanchan and Chiguancay (Rhoads).

Gualea, 1.

RANGE.—Subtropical Zone; Colombia and western Ecuador.

(3669b) *Basileuterus tristriatus baezae* Chapm.

Basileuterus tristriatus baezae CHAPM., Amer. Mus. Novit., No. 143, 1924, p. 5 (Baeza, Ec.).

Basileuterus tristriatus, B. & T., 1885, p. 74 (Machay; Mapoto).

Baeza, 4♂, 2♀; lower Sumaco, 5♂, 4♀; Macas region, 1.

Subspecific Characters.—Intermediate between *B. t. tristriatus* (Tsch.) of Peru and *B. t. auricularis* Sharpe of Colombia; general color of underparts rich amber-yellow instead of lemon-chrome as in *tristriatus*, or straw-yellow as in *auricularis*; breast more washed with olive, less clear yellow than in *tristriatus*, together with the flanks much richer and deeper than in *auricularis*; tail averaging shorter than in either *tristriatus* or *auricularis*.

RANGE.—Subtropical Zone, eastern Ecuador.

(3671a) *Basileuterus trifasciatus nitidior* Chapm.

Basileuterus trifasciatus nitidior CHAPM., Amer. Mus. Novit., No. 143, 1924, p. 8 (El Chiral, s. w. Ec.).

El Chiral, 5♂, 4♀; Punta Santa Ana, 4♂, 1♀; Guachanamá, 2♀; Celica, 1♂, 2♀; Alamor, 1♂.

Subspecific Characters.—Similar to *B. t. trifasciatus* Tacz. of the upper Marañon Valley, but center of crown with more orange or yellow; forehead and crown-stripes and nape tinged with olive, not so clearly gray; back yellower green, the foreback not washed with grayish.

RANGE.—Subtropical Zone, southwestern Ecuador.

(3673) *Basileuterus castaneiceps castaneiceps* Scl. & Salv.

Basileuterus castaneiceps SCL. & SALV., P. Z. S., 1877, p. 521 (Jima, Ec.).

El Chiral, 1♂, 2♀; Zaruma, 1♂, 1♀; Taraguacocha, 5♂, 2♀; Loja, 2♂, 2♀. Peru: Chaupe, 4♂, 2♀; El Tambo, 1♂; Palambra, 2♂, 2♀, 2?.

RANGE.—Chiefly upper Subtropical Zone: the species, northern Peru and Ecuador; the race, northern Peru and southwestern Ecuador.

(3677a) *Basileuterus castaneiceps orientalis* Chapm.

Basileuterus castaneiceps orientalis CHAPM., Amer. Mus. Novit. No. 143, 1924, p. 8 (upper Sumaco, Ec.).

Basileuterus castaneiceps, B. & T., 1885, p. 74 (Machay; San Rafael); GOODF., 1901, p. 315 (Baeza).

Puente del Rio Quixos, 1 ♀; lower Rio Sardinas, 1 ♀; Oyacachi, 1 ♂, 2 ♀; Macas region, 1?.

Subspecific Characters.—Similar to *B. c. castaneiceps* Scl. & Salv. of western Ecuador, but lateral crown-stripes blacker, more pronounced; back more olivaceous, olive-green rather than olive-brown; breast slightly, belly more strongly, margined with yellow, giving a streaked appearance; ventral region and crissum much more strongly yellow with a slight buffy tint; size larger, 5 ♂, wing 70–75 mm., tail 60–65 mm.; 2 ♀, wing 67–68 mm., tail 56–59 mm.

RANGE.—Chiefly upper Subtropical Zone; eastern Ecuador.

(3674) *Basileuterus coronatus* (Tsch.)

Myiodiodes coronatus TSCH., Arch. für Naturg., I, 1844, p. 283 (Peru).

Basileuterus coronatus, SCL., 1859a, p. 137 (Pallatanga); B. & T., 1884, p. 286 (Cayandeled; Tribulputa; Cechce); S. & F., 1899a, p. 9 (Niebli); GOODF., 1901, p. 314 (Milligalli; Canzanota); MEN., 1911, p. 73 (Nono); L. & R., 1922, p. 78 (road to Nanegal).

Huigra; Pagma Forest (Rhoads).

Verdecocha, 1 ♀; road to Nanegal, 1 ♂; Pallatanga, 2 ♂.

RANGE.—Subtropical Zone; Bolivia to Venezuela; not recorded from eastern Ecuador or eastern slope of East Andes in Colombia.

Comparison of large series from Colombia and Peru presents no constant racial characters. The former have, as a rule, more yellow in the crown and are more washed with olivaceous below, but these differences are slight and entirely overlapped by individual variation. We have found this species to be more common in Colombia than in Ecuador. Two Bolivian specimens (Locotal; Roquefalta) are smaller than the average (wing 61 to 62 mm.) and have the nape more olive. Possibly, they represent an undescribed race.

(3676)* *Basileuterus bivittatus chlorophrys* Berl.

Basileuterus bivittatus chlorophrys BERL., Proc. Fourth Int. Cong., 1907, p. 347 ("Quito" = Ecuador); MEN., 1911, p. 73 (Ayuriquin).

Basileuterus bivittatus, SCL., 1859a, p. 137 (Pallatanga); 1860c, p. 85 (Cachi-Llacta; Nanegal).

Basileuterus chrysogaster SCL., 1859a, p. 137 (Pallatanga); 1860d, p. 273 (Babahoyo).

Chimbo, 1 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to southwestern Colombia; the race, western Ecuador and southwestern Colombia; not recorded from eastern Ecuador.

This bird agrees with two from Buenavista, southwestern Colombia. All differ from a topotypical series of *b. chrysogaster* in being browner above, darker yellow, more washed with olivaceous below.

(3681) ***Basileuterus fraseri fraseri* Scl.**

Basileuterus fraseri SCL., P. Z. S., 1883, p. 653 (Pallatanga); B. & T., (Scl. MS., no description), 1883, p. 541 (Chimbo); 1884, p. 286 (Pedregal); HART., 1898, p. 480 (Chimbo); ? S. & F., 1899a, p. 9 (Vinces).

Bucay; junction of Chanchan and Chiguancay (Rhoads).

Chimbo, 1 ♂, 1 ?; Rios Coco and Chimbo, 2 ♂, 1 ?; Rio Jubones, 1 ♂; La Puente, 2 ♂; La Chonta, 16 ♂, 3 ♀; Santa Rosa, 7 ♂, 6 ♀; El Chiral, 1 ♂, 1 ♀; Portovelo, 5 ♂, 2 ♀, 2 ?; Zaruma, 1 ♂; Salvias, 1 ♀; Punta Santa Ana, 2 ♀; Las Piñas, 1; Guainche, 1 ♂, 3 ♀; Cebollal, 2 ♂; Lunamá, 1 ♂; Alamor, 2 ♂, 3 ♀; Pullango, 1 ♂, 1 ♀. Peru: Milagros, 1 ♂; Paletillas, 4 ♂, 4 ♀; Palambra, 1 ♂, 5 ♀.

RANGE.—Subtropical Zone in northwestern Peru and adjoining parts of Ecuador, descending to the Tropical Zone from Santa Rosa northward; intergrading with *B. f. ochraceicrista* in the Chimbo Valley.

Typical *fraseri* has the center of the crown bright lemon-chrome, with small, sometimes barely distinguishable chestnut tips; while in *ochraceicrista* the center of the crown is ochraceous-orange with the concealed bases of the feathers yellow. All nine specimens from north of the Chimbo valley are typical *ochraceicrista*, all our specimens from south of the Chimbo valley are typical *fraseri*. Of eleven specimens from the Chimbo Valley, five may be referred to *fraseri*, while six are intermediate between *fraseri* and *ochraceicrista*. Several of these intergrades are nearer the latter than the former and, in my opinion, further collecting would result in the discovery of typical *ochraceicrista* in the Chimbo valley. We should, then, have typical specimens of both races and connectants between the two at the same locality, evidence that their intergradation is accomplished by hybridization.

This species appears to have no close relatives. While presumably of Marañon origin, it has no representative in that region.

(3681a) ***Basileuterus fraseri ochraceicrista* Chapm.**

Basileuterus fraseri ochraceicrista CHAPM., Amer. Mus. Novit., No. 18, 1921, p. 11 (Chone, Ec.).

Basileuterus fraseri, B. & T., 1883, p. 541 (Guayaquil).

Chone, 2♂, 2♀; Chongoncito, 1♂, 1♀; Chongon Hills, 2♂; Guayaquil, 1♂. Intergrades between *ochraceicrista* and *fraseri*: Bucay, 1♂; Chimbo, 1♀; Rios Coco and Chimbo, 1♂, 1♀; Naranjo, 1♂, 1♀.

RANGE.—Arid Tropical Zone, Puna Island, and Guayaquil, north to Manaví; intergrading with *B. f. fraseri* in the Chimbo Valley.

Subspecific Characters.—Similar to *B. f. fraseri* Scl., but with the center of the crown ochraceous-orange, instead of lemon-chrome slightly tipped with chestnut.

(3691) ***Basileuterus fulvicaudus fulvicaudus* (Spix)**

Muscicapa fulvicauda SPIX, Av. Bras., II, 1825, p. 20, pl. xxviii (Brazilian Amazons).

Basileuterus uropygialis, S. & F., 1899a, p. 9 (Valle del Zamora).

Zamora, 1♂; Rio Suno, 1♂, 3♀; below San José, 1♂, 3♀.

RANGE.—Tropical Zone: the species, southeastern Brazil to Honduras; the race, Amazon Valley.

Lacking topotypes of *fulvicaudus* (Spix), I am unable definitely to identify our eastern Ecuadorean specimens. Hellmayr refers a specimen from southeastern Peru to *fulvicaudus* and states that this form ranges northward to eastern Ecuador. But our eastern Ecuadorean specimens differ from six southeastern Peruvian examples in being decidedly more fulvous below and in having the tail basally much deeper. In these respects they agree with an example from Perené, Chanchamayo, Peru, which should represent *poliothrix* (Berl. & Stolz.). These authors, however, state that the eastern Peruvian bird differs from the eastern Ecuadorean bird. It is probable that all these opinions rest on insufficient material and the status of the eastern Ecuadorean bird, at least, must for the present remain unsettled.

(3690) ***Basileuterus fulvicaudus semicervinus* Scl.**

Basileuterus semicervinus SCL., P. Z. S., 1860, p. 84 (Nanegal, w. Ec.); 1860e, p. 291 (Esmeraldas); B. & T., 1883, p. 541 (Chimbo); HART., 1898, p. 480 (Cachaví); S. & F., 1899a, p. 9 (Rio Peripa); GOODF., 1901, p. 314 (Nanegal).

Bucay (Rhoads).

Esmeraldas, 2♂, 4♀; Cuaque El Destino, 1♂; Rio de Oro, 3♂, 2♀; Chimbo, 1♂; La Chonta, 6♂, 1♀; Cebollal, 1♂.

RANGE.—Tropical Zone; western Ecuador to Panamá.

Specimens from south of Guayaquil average paler below than those from more northern localities.

FAMILY MOTACILLIDÆ. PIPITS, WAGTAILS

(3694) *Anthus bogotensis bogotensis* *Scl.*

Anthus bogotensis *SCL.*, P. Z. S., 1855, p. 109 (Bogotá); B. & T., 1885, p. 74 (San Rafael; Chimborazo); HART., 1898, p. 479 ("Cachaví"); S. & F., 1899*a*, p. 7 (Chaupi); GOODF., 1901, p. 313 (Valle de Viciosa, 14,000 ft.); RHOADS, 1912, p. 144 (Paramo of Pichincha); L. & R., 1922, p. 78 (Pichincha, 13,000–14,000 ft.).

Pichincha 12,000–13,000 ft. (Rhoads).

Cerro Huamani, 2♂, 1♀; Antisana, 1♀; Chimborazo, 6♂, 5♀; Taraguacocha, 1♂; Bestion, 3♂, 5♀.

RANGE.—The species: Argentina and Andean Temperate and Paramo Zones to Venezuela; the race, Venezuela to Peru.

Ecuadorian birds are apparently not separable from true *bogotensis*.

FAMILY CATAMBLYRHYNCHIDÆ. PLUSH-CAPPED FINCHES

(3703) *Catamblyrhynchus diadema* *Lafr.*

Catamblyrhynchus diadema *LAFR.*, Rev. Zool., 1842, p. 301 (Colombia); JARD., 1856, p. 91 (e. Cordillera); B. & T., 1884, p. 293 (Cayandeled; Chaguarpata); ALLEN, 1889, p. 72 (Nanegal); GOODF., 1901, p. 471 (Mindo); MEN., 1911, p. 74 (Chorillos); L. & R., 1922, p. 78 (near Mindo).

Hacienda Garzon (Rhoads).

'Nanegal,' 1; 'Gualea,' 1; Baeza, 1♂, 2♀; upper Sumaco, 1♂; upper Rio Upano, 1.

RANGE.—Subtropical Zone, Ecuador and Colombia.

Specimens from eastern Ecuador have the forehead less intensely orange than in those from western Ecuador, and thus approach *citrinifrons* Berl. & Stolz., of which I have topotypes from Maraynioc. If the difference between these two forms were one of color alone I should have no hesitation in ranking them as subspecies. There is, however, a structural difference in the yellow frontal feathers which in *diadema* are bristly and erect, while in *citrinifrons* they are much softer and recumbent. Furthermore, an adult male from Palambla, west of Piura (the capture of which greatly extends the known range of *citrinifrons*), agrees in all respects with Maraynioc examples.

FAMILY FRINGILLIDÆ. FINCHES, SPARROWS, GROSBEAKS,
SALTATORS, ETC.

(3705) *Pheucticus chrysopheplus chrysogaster* (Less.)

Pitylus chrysogaster LESS., Cent. Zoöl., 1830, pl. 67 ("Chili"—Hellm. & Seil. substitute Quito, Ec., Verh. der Orn. Gesell. Bayern, XII, 1915, p. 160).

Pheucticus chrysogaster, SCL., 1858b, p. 454 (Cuenca); 1859a, p. 140 (Pallatanga); 1860c, p. 87 (Calacali); B. & T., 1883, p. 549 (Chimbo); 1884, p. 292 (Cechce; Bugnac; Cayandedel); ALLEN, 1889, p. 72 (Quito); S. & F., 1899a, p. 22 (La Concepcion; Cuenca); GOODR., 1901, p. 473 (Chillo Valley; Quito; Nov., Dec., Jan.); MEN., 1911, p. 74 (Tumbaco; Calacali); L. & R., 1922, p. 78 (Quito; Tumbaco).

Pheucticus chrysopheplus chrysogaster, HART., 1898, p. 484 (Ibarra; Cayambe).

Huigra; Chunchi; Cumbaya (Rhoads).

Verdecocha, 1 ♀; Pichincha, 1 ♀; Mocha, 1 ♀; Manta, 5 ♂, 2 ♀; Tumbaco, 2 ♂; Cumbaya, 1 ♀; Pallatanga, 1 ♂; Puna Is., 1 ♂; Santa Rosa, 1 ♀; Zaruma, 1 ♀; Punta Santa Ana, 2 ♂; Salvias, 1 ♀; El Paso, 2 ♂, 1 ♀; Casanga, 6 ♂; Celica, 1 ♀; Lunamá, 1 ♀; Alamor, 1 ♀; Cebollal, 2 ♂, 1 ♀; Loja, 3 ♂, 1 ♀; Sabanilla, 1 ♂, 1 ♀; Zamora, 3 ♂. Peru: Paletillas, 1 ♂; Palambla, 4 ♂, 2 ♀; Viru, La Libertad, 3 ♂; Huancabamba, 2 ♀; Rio Chinchipe, 2 ♀; Rumicruz, Junin, 1 ♂; Utcuyacu, Junin, 1 ♂.

RANGE.—Tropical to Temperate Zones: the species, Peru, Ecuador, and Mexico; the race, Peru and Ecuador.

This bird has a remarkably wide range in Peru and Ecuador, but appears to be unknown in Colombia. From Santa Marta, Todd and Carriker record *P. laubmanni*, described by Hellmayr and Seilern from the Caracas region as a race of *chrysogaster*, but although evidently representing *chrysogaster*, I agree with Todd and Carriker in believing *laubmanni* to be specifically distinct.

Although separated from true *chrysopheplus* by Colombia and all of Central America, *chrysogaster* seems obviously a subspecies of that bird; indeed, aside from a difference in size, we have Ecuadorean specimens which closely resemble Mexican ones. Specimens from higher altitudes average larger than those from the lowlands, but beyond this I detect no racial variation in our large series from Ecuador and Peru, in spite of the fact that it contains specimens from the arid Pacific coast and humid Amazon slopes, and from sea-level to tableland.

(3709) *Pheucticus crissalis* Scl. & Salv.

Pheucticus crissalis SCL. & SALV., P. Z. S., 1877, p. 19 (Riobamba, Ec.); B. & T., 1885, p. 84 (San Rafael); S. & F., 1899a, p. 23 (La Concepcion; Ibarra; Tumbaco); MEN., 1911, p. 74 (Riobamba); L. & R., 1922, p. 78 (Ambato).

Pheucticus aureiventris, SCL., 1858c, p. 551 (above Punin and Riobamba).

Riobamba; Cajabamba; Chambo (Rhoads).

Mocha, 1 ♀; Cluvinda (Buckley), 1 ♂.

RANGE.—Temperate Zone of Ecuador.

This is obviously a representative of the *aureiventris-uropygialis* group, which will probably be found to intergrade from Bolivia to Venezuela.

(3710) **Zamelodia ludoviciana** (Linn.)

Loria ludoviciana LINN., Syst. Nat., I, 1766, p. 306 (Louisiana).

Hedymeles ludovicianus, SCL., 1860e, p. 293 (Esmeraldas); B. & T., 1885, p. 84 (Mapoto).

Habia ludoviciana, ALLEN, 1889, p. 72 (Callipalli [= Calacali ?] foot of Pichincha, 10,000 ft.).

Zamelodia ludoviciana, L. & R., 1922, p. 79 (below Calacali, 9,000 ft., Oct. 10, Oct. 24).

Esmeraldas, 1 ♂ ad. (Nov. 18); lower Sumaco, 1 ♂ ad. (Dec. 27).

RANGE.—Breeds in eastern North America; winters southward to Ecuador.

(3712) **Cyancompsa cyanoides cyanoides** (Lafr.)

Coccyborus cyanoides LAFR., Rev. Zool., 1847, p. 74 (Panama).

Guiraca — ? [near *G. cyanea*], SCL., 1860e, p. 293 (Esmeraldas).

Guiraca cyanoides, B. & T., 1883, p. 549 (Chimbo); S. & F., 1899a, p. 23 (Rio Peripa).

Bucay (Rhoads).

Esmeraldas, 5 ♂, 4 ♀; Rio de Oro, 1 ♂, 1 ♀; Cerro Manglar Alto, 1 ♀; Chimbo, 1 ♂, 1 ♀; Bucay, 1 ♂; Naranjo, 2 ♀; Santa Rosa, 1 ♂, 1 ♀; La Puente, 1 ♂, 1 ♀; La Chonta, 2 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, Bolivia to Mexico; the race, western Ecuador to Panama and Venezuela.

Western Ecuadorean birds agree with Canal Zone specimens.

(3713) **Cyancompsa cyanoides rothschildi** (Bart.)

Guiraca rothschildii BART., Ann. & Mag. Nat. Hist., VI, 1890, p. 168 (Carimang River, British Guiana).

Rio Suno, 1 ♀; below San José, 3 ♂ im., 1 ♀.

RANGE.—Tropical Zone, east of the Andes from Bolivia to the Orinoco and Guiana.

I accept Mr. Todd's ('The Auk,' 1923, pp. 62, 63) identification of this race from the interior of South America.

(3719) *Oryzoborus angolensis brevirostris* Berl.

Oryzoborus angolensis brevirostris BERL., Nov. Zoöl., XV, 1908, p. 119 (Cayenne).

Oryzoborus torridus, SCL., 1858b, p. 455 (Zamora); S. & F., 1899a, p. 23 (Zamora; Gualaquiza).

RANGE.—Tropical Zone; southern Brazil to Venezuela.

We have no Ecuadorean specimens.

(3723) *Oryzoborus occidentalis* Scl.

Oryzoborus occidentalis SCL., P. Z. S., 1860, p. 276 (Babahoyo, Ec.).

RANGE.—Western Ecuador (Nicaragua ?).

We have no specimens. Salvin and Godman question the distinctness of this species from *O. nuttingi* of Nicaragua (Cat. Bds. Brit. Mus., XII, p. 80).

(3724) *Oryzoborus funereus æthiops* Scl.

Oryzoborus æthiops SCL., P. Z. S., 1860, p. 88 (Nanegal); 1860d, p. 276 (Babahoyo).

Oryzoborus funereus, HART., 1898, p. 484 (Cachaví).

Bucay (Rhoads).

Esmeraldas, 1 ♀; Bucay, 1 ♂; Naranjo, 1 ♂, 1 ♀; Zaruma, 1 ♂; Portovelo, 1 ♂ im.; Rio Pindo, 1 ♂ im.

RANGE.—Tropical Zone; western Ecuador to Mexico.

My material indicates the non-existence of a southern race but it is not conclusive. (See also Todd and Carriker, Ann. Carn. Mus., XIV, 1922, p. 506.)

(3728) *Neorhynchus devronis devronis* (Verr.)

Callirhynchus devronis VERR., Rev. et Mag. de Zoöl., 1852, p. 315 (Ecuador).

Neorhynchus naseus, TACZ., 1877, p. 320 (Tumbez).

Neorhynchus devronis, S. & F., 1899a, p. 23 (Puntilla de Santa Elena).

Bahia de Caraques, 2 ♂; Santa Elena, 2 ♂, 1 ♀; Puna Is., 2 ♂, 4 ♀; Tembleque Is., 2 ♂, 1 ♀.

RANGE.—Arid Tropical Zone: the species, Manaví, Ec., to Ica, Peru; the race, Ecuador.

Our series of some sixty specimens from Ecuador and Peru indicates that *N. devronis* varies only in size, that it is smallest at the northern part of its range and largest at the southern part, and that nowhere can one draw a line separating the extremes. So far as our material goes, however, all Ecuadorean birds are referable to true *devronis*, all Peruvian ones to *naseus*. The appended measurements of males show the decrease in size from the south northward.

Measurements of Males

	Wing mm.	Tail mm.	Tarsus mm.
Huaral, Prov. Lima, Peru . . 5	62.5-67 (65.2)	44-49 (46.3)	16-17 (16.3)
Trujillo, La Libertad, Peru . 5	61-63 (61.4)	40-43 (41)	15-16 (15.6)
Tembleque Is. 1	59	42	15
Bahia de Caraques, Ec. . . . 2	55-57	39.5-40	14-14.5
Puna Is. 2	58-58.5	39.5-42	14-14.5

There is also a striking difference in the bulk of the bill which is not adequately revealed by measurements.

(3729) *Piezorhina cinerea* Lafr.

Piezorhina cinerea LAFR., Mag. Zoöl., 1843, pl. xx (Peru).

Camarhynchus cinereus, TACZ., 1877, p. 321 (Tumbez).

Peru: Lamor, 1♂; Samate, 1♀.

RANGE.—Arid Tropical Zone, northwestern Peru.

Recorded from Tumbez, but not as yet from the Ecuador side of the line.

(3735a) *Sporophila schistacea incerta* Riley

Sporophila incerta RILEY, Proc. Biol. Soc. Wash., 1914, p. 213 (Gualea, Ec.).

RANGE.—The species, western Ecuador to Panama.

The National Museum authorities have kindly sent me the type of *S. incerta* Riley for comparison with that of *S. schistacea* Lawr.¹, both unique specimens. They agree in wing formula, and thus differ from *intermedia* (= *grisea* auct.), but *incerta* is considerably larger than *schistacea*, has a more robust bill, and the white malar patches, so prominent in at least the type of *schistacea*, are barely suggested in *incerta*, though the skin of the type of this race is so prepared that it is difficult to determine the exact character of the markings of the side of the throat.

Measurements

	Wing mm.	Tail mm.	Depth of bill at base
<i>S. schistacea schistacea</i> (type)	61.5	41	7
<i>S. schistacea incerta</i> (type)	66	44	8

¹ Compare Penard, Proc. Biol. Soc. Wash., XXXVI, 1923, p. 59.

(3742) *Sporophila telasco* (Less.)

Spermophila telasco LESS., Voy. Coq. Ois., 1826, p. 663, pl. 15, fig. 3 ("Lima au Perou"); Tacz., 1877, p. 320 (Tumbez); B. & T., 1883, p. 550 (Guayaquil); S. & F., 1899a, p. 24 (Puntilla de Santa Elena; Balzar).

Esmeraldas, 4♂, 3 ♀; Chone, 5♂, 4 ♀; Bucay, 1♂; Puna Is., 9♂, 6 ♀.

RANGE.—Pacific coast from the Peru-Chile boundary north to northwestern Ecuador.

Examination of a very large series of this species from throughout its range reveals no racial variation. In breeding males the bill is black, and freshly plumaged birds are much browner above than those in which the tips of the feathers have worn off, revealing the gray below.

It is not improbable that this species may be a representative of *S. minuta*, with *S. insulata* of Tumaco Island as an intermediate between the two. The latter has the belly white and the chestnut on the rump much reduced, and is thus, in characters as well as geographically, between *minuta* and *telasco*.

(3743) *Sporophila castaneiventris castaneiventris* Cab.

Sporophila castaneiventris CAB., in Schomb. Reis. Guiana, III, 1848, p. 679 (Guiana).

Spermophila castaneiventris, S. & F., 1899a, p. 24 (Gualaquiza; Valle del Zamora).

RANGE.—Tropical Zone; the species, Guiana to Peru (*S. c. rostrata* Todd, lower Amazon).

We have no specimens from Ecuador.

(3745) *Sporophila minuta minuta* (Linn.).

Loxia minuta LINN., Syst. Nat., I, 1758, p. 176 (Surinam).

Spermophila minuta, S. & F., 1899a, p. 23 (La Concepcion).

RANGE.—Tropical Zone; the species, northern South America to Mexico; represented in western Ecuador by *S. telasco* (?).

Recorded from La Concepcion, eastern Ecuador, by Salvadori and Festa. We have no Ecuadorean specimens.

(3759) *Sporophila aurita ophthalmica* (Scl.)

Spermophila ophthalmica SCL., P. Z. S., 1860, p. 276 (Babahoyo, Ec.); 1860e, p. 293 (Esmeraldas); B. & T., 1883, p. 550 (Guayaquil; Chimbo); 1885, p. 84 (Yaguachi); HART., 1898, p. 484 (Cachavi); S. & F., 1899a, p. 24 (Vinces; Playas); GOODF., 1901, p. 473 (Santo Domingo).

Sporophila ophthalmica, MEN., 1911, p. 74 (Riobamba).

Bucay (Rhoads).

Esmeraldas, 3 ♂, 6 ♀; Manaví, 6 ♂, 2 ♀; Daule, 6 ♂, 2 ♀; Duran, 1 ♂, 3 ♀; Bucay, 1 ♂, 1 ♀; Chimbo, 1 ♂, Naranjo, 1 ♀; Santa Rosa, 1 ♂, 5 ♀; Rio Jubones, 2 ♂, 1 ♀; Portovelo, 6 ♂, 5 ♀; Rio Pindo, 2 ♂; Salvias, 1 ♀; Cebollal, 3 ♂, 1 ♀; Alamor, 2 ♀; Rio Pullango, 1 ♀. Peru: Palambla, 3 ♂, 3 ♀.

RANGE.—Tropical Zone: the species, western Ecuador and eastern Colombia to Guatemala; the race, western Ecuador.

Thirty-three adult males from Ecuador and three from northwestern Peru are, for so variable a species, surprisingly uniform in color. As a rule, the whole throat up to the auriculars is white, unmarked by black, but in several specimens there are traces of black on the malar region. In twenty-eight adult males from Tumaco, western Colombia, to eastern Panama only four are without pronounced spots on the malar region. The amount of black on the throat and breast of these Colombia-Panama birds increases quite regularly from the south northward to the Choco; six Tumaco, Buenavista, and Barbacocas birds have black malar spots, white throats, and the breast-band is as in *ophthalmica*. In eight Choco birds the throat is black, separated from the black breast by a white band extending from ear-covert to ear-covert. In eastern Panama birds the black is reduced, only four out of eight having black on the throat. Nine Canal Zone males (including the types of *semicollaris* and *fortipes*) have the throat and breast essentially continuous black; and in five from Chiriqui and six from Costa Rica the throat and breast are black, but in all but one there is a narrow but nearly or wholly complete white collar. The rump is white in all but one Ecuadorean bird, and in all but one of the Colombia-east Panama series. It is black in all the Canal Zone series and white in all but one bird of the Chiriqui-Costa Rica series. In spite of these variations, these birds seem to fall into the four following groups:

(1) Ecuador (*ophthalmica*); (2) Colombia-east Panama; (3) Canal Zone (*aurita*) and (4) Chiriqui-Costa Rica (*collaris*). I formerly referred the northwestern Colombian bird to *aurita*, those from southwestern Colombia to *ophthalmica*. But if *ophthalmica* is a white-throated bird without a black malar mark, and *aurita* is a black-throated, black-breasted bird, then these Colombia-east Panama birds are neither *ophthalmica* nor *aurita*. What they are nomenclaturally I shall not attempt to say, but biologically they are unquestionably connectants between the Ecuadorean and Panama forms.

(3761) *Sporophila æquatorialis* (Salvad. & Festa)

Spermophila æquatorialis SALVAD. & FESTA, Boll. Mus. Tor., XV, No. 357, 1899, p. 24 (Balzar, Ec.).

RANGE.—Known only from the type-locality.

This species is described as related to *S. americana* (Gmel.) [= *S. lineata* Auct.]. We have not taken it.

(3766) *Sporophila gutturalis olivacea* (Berl. & Tacz.)

Spermophila gutturalis olivacea BERL. & TACZ., 1883, p. 550 (Chimbo, Ec.); 1884, p. 293 (Cayandeled); HART., 1898, p. 484 (Paramba); GOODF., 1901, p. 473 (Santo Domingo); MEN., 1911, p. 74 (Guilea; Santo Domingo).

Spermophila gutturalis, SCL., 1860c p. 88 (Nanegal; Puellaro); 1860e, p. 293 (Esmeraldas); S. & F., 1899a, p. 25 (La Concepcion).

Bucay; junction Chanchan and Chiguanecay; Huigra; Cumbaya (Roads).

Esmeraldas, 2♂ ad., 4♂ im., 1♀; Mudo, 2♂ ad., 2♂ im., 2♀; Rio de Oro, 1♀; Bucay, 2♂ ad.; Alamor, 1♂.

RANGE.—Tropical Zone: the species, eastern Brazil to Costa Rica; the race, western Ecuador.

I agree with Todd and Carriker¹ in regard to the wide range of individual variation in this species, but our material supports Hellmayr's² belief in the validity of the western Ecuadorean form. In a series of fifty-odd adult males from throughout the range of true *gutturalis*, not one is so richly colored as most of our specimens from western Ecuador. Immature western Ecuadorean males are also deeper in tone than those from elsewhere in South America. An adult male from Palambla, northwestern Peru, however, is as pale as the average specimen of *gutturalis*.

(3770) *Sporophila bouvronides* (Less.)

Pyrrhula bouvronides LESS., Traite d'Orn., 1831, p. 450 (no locality given)

Spermophila ocellata, B. & T., 1885, p. 84 (Machay).

RANGE.—Tropical Zone, Peru to Venezuela.

We have no Ecuadorean specimens.

¹ Ann. Carn. Mus., XIV, 1922, p. 513.

² Nov. Zoöl., XII, 1905, p. 278.

(3771) *Sporophila luctuosa* (Laf.)

Spermophila luctuosa LAFR., Rev. Zoöl., 1843, p. 291 (Colombia); SCL., 1858a, p. 72 (Napo); 1858b, p. 455 (Gualaquiza; Zamora); B. & T., 1884, p. 293 (Bugnac); 1885, p. 84 (Mapoto; Machay); HART., 1898, p. 484 (Ibarra; Paramba); S. & F., 1899a, p. 24 (Valle del Zamora; Gualaquiza).

Junction Chanchan and Chiguancay; Chunchi; Cumbaya (Rhoads).

Loja, 2 ♀; Sabanilla, 3 ♂ im., 3 ♀; Zamora, 2 ♂ im.; below Oyacachi, 2 ♀; Baeza, 1 ♂ im., 1 ♀; lower Sumaco, 2 ♂ ad. Peru: Viru, La Libertad, 4 ♂ ad.

RANGE.—Tropical and Subtropical Zones, Bolivia to Colombia; eastern and western Ecuador and western Peru.

We have taken this species in western Peru but not in western Ecuador, whence, however, it is recorded by Hartert and Rhoads.

(3778) *Sporophila obscura obscura* (Tacz.)

Spermophila obscura TACZ., P. Z. S., 1874, p. 519 (Paltaypampa, Peru); B. & T., 1883, p. 550 (Chimbo).

Spermophila pauper B. & T., 1884, p. 293 (Cayandedel).

Spermophila obscura pauper, HART., 1898, p. 485 (Chimbo).

Bucay, 7 ♂, 1 ♀; Naranjo, 2 ♀; Pallatanga, 1 ♂; Zaruma, 1 ♂; Portovelo, 1 ♂, 1 ♀; Las Piñas, 1 ♂; Cebollal, 2 ♀.

RANGE.—Tropical Zone ranging upward along trails and clearings to the Subtropical; southeastern and western Peru, western (and eastern ?) Ecuador, and Colombia (Santa Marta ?).

Ecuadorean birds average smaller than a good series from eastern central and southeastern Ecuador, but do not, so far as I can discover, differ from them in color. Two specimens from Huancabamba and four from La Libertad, western Peru, are decidedly whiter below than any of our forty remaining specimens, with the exception of one from Perico, Rio Chinchipe, which agrees with them. However, we have typical *obscura* also from Perico, a fact which obscures the claims of a western Peruvian form to recognition.

A male from Caldas, western Colombia, in worn plumage, labelled by Mr. Todd "*Sporophila halpalochroma*," and a female in fresher plumage from La Frijolera, Antioquia, are apparently not separable from Ecuadorean and Peruvian specimens. Two females from Santa Marta, however, are browner below than any other birds in our series, but do not impress me as being specifically distinct from *obscura*.

(3773) *Idiospiza inornata minor* (Berl.)

Catamenia inornata minor BERL., P. Z. S., 1885, p. 115 (Cechcé, Ec.).

Catamenia inornata, B. & T., 1885, p. 85 (San Rafael); S. & F., 1899a, p. 26 (Cañar).

Catamenia beecheyi minor, MEN., 1911, p. 76 (Quito).

Southern base of Pichincha; above Chambo, 9,800 ft. (Rhoads).

Pichincha, 4♂, 2♀; Lloa, 1♂; Guamani, 1♂; Chimborazo, 3♀; Bestion, 2♂, 2♀; El Paso, 3♂; Guachanamá, 1♀; Taraguacocha, 2?

RANGE.—Paramo Zone: the species, Bolivia to Colombia; the race, Ecuador and Colombia.

Mr. Todd's grounds for the generic separation of this and the following species from *Catamenia* seem well taken (Proc. Biol. Soc. Wash., XXX, 1917, p. 127).

(3774) *Idiospiza homochroa* (Scl.)

Catamenia homochroa SCL., P. Z. S., 1858, p. 552 (Matos, Ec.); 1860c, p. 88 (Calacali; above Puellaro); B. & T., 1884, p. 293 (Cechce); 1885, p. 85 (San Rafael); S. & F., 1899a, p. 26 (Papallacta); GOODF., 1901, p. 474 (Quito); MEN., 1911, p. 76 (Oyacachi; Lloa).

Hacienda Garzon (Rhoads).

Pichincha, 1♂; El Corazon, 1♀; Cerro Huamani, 3♂; Papallacta, 1♂; Oyacachi, 3♂, 3♀.

RANGE.—Paramo and Arid Temperate Zones; Peru to western Venezuela.

I discover no racial variation in an excellent series from throughout the range of this species.

(3777a) *Catamenia analoides söderstromi* Chapm.

Catamenia analoides söderstromi CHAPM., Amer. Mus. Novit., No. 143, 1924, p. 9 (El Paso, Azuay, Ec.).

Catamenia analoides, SCL., 1858b, p. 455 (Cuenca); 1858c, p. 552 (Riobamba; Guano); B. & T., 1884, p. 293 (Cechce; Bugnac; and on road from Alausi to Bugnac); 1885, p. 85 (between Chimborazo and Riobamba); HART., 1898, p. 485 (Ibarra); S. & F., 1899a, p. 26 (Valle de Chillo; Tumbaco); GOODF., 1901, p. 474 (Quito; Chillo Valley); L. & R., 1922, p. 79 (Quito; Tumbaco; Cumbaya).

Catamenia lafresnayei, MEN., 1911, p. 77 (Guápulo; Tumbaco).

Riobamba; Cumbaya; Hacienda Garzon (Rhoads).

El Paso, 8♂; Quito, 3♂; Valle de Cumbaya, 3♂; Tumbaco, 1♂ ad., 2♂ im.; Yaguarcocha, 1♂ ad., 1♂ im.

Subspecific Characters.—In general body coloration resembling *C. a. griseiventris* Chapm. of the Peruvian tableland, but considerably smaller and with much less white in the tail. Averaging smaller than *C. a. analoides* (Lafr.) of the coast of Peru; the abdomen and flanks grayer, as in *griseiventris*. Lower tail-coverts darker than in any other race of the species.

RANGE.—Temperate Zone: the species, Argentina to Santa Marta, Col.; the race, Ecuador.

(3789a) *Volatinia jacarini pacifica* Chapm.(3790) *Volatinia jacarini atronitens* Todd

Volatinia jacarini pacifica CHAPM., Amer. Mus. Novit., No. 143, 1924, p. 11 (Trujillo, Peru).

Volatinia jacarini atronitens TODD, Proc. Biol. Soc. Wash., XXXIII, 1920, p. 72 (Campeche, Mex.; new name to replace *splendens* Vieill., synonymous with *jacarini*).

Volatinia splendens, SCL., 1859a, p. 140 (Pallatanga); 1860d, p. 275 (Babahoyo).

Volatinia jacarina splendens, B. & T., 1883, p. 551 (Guayaquil); 1884, p. 294 (El Placer); 1885, p. 84 (Yaguachi).

Volatinia jacarini splendens, HART., 1898, p. 484 (Paramba; Ibarra).

Volatinia jacarini, S. & F., 1899a, p. 25 (La Concepcion; Vinces; Balzar).

Junction Chanchan and Chiguancay; Cumbaya (Rhoads).

Esmeraldas, 3♂ ad., 2♀; Chone, Manaví, 2♂ ad., 2♀; Daule, 1♂ ad.; Guayaquil, 2♂ ad., 1♀; Chongoncito, 1♀; Duran, 1♀; Bucay, 1♂ ad., 3♂ im., 3♀; Puná Is., 3♂ ad., 2♀; Santa Rosa, 1♂ ad., 6♂ im., 2♀; Portovelo, 2♂ im., 1♀; Rio Pindo, 1♂ ad.

Subspecific Characters of *V. jacarini pacifica* CHAPM.—Male similar to male of *V. j. jacarini* (Linn.), but with less white in the wing—"lining," the lower greater wing-coverts, as a rule, not wholly white, the white area on the inner vane of the wing-quills not reaching the shaft of the feather. Fully mature males with the wing-quills browner, particularly apically, their exposed edges margined with grayish; immature birds, evidently in their second year, with the wings fuscous hair-brown.

RANGE.—Tropical Zone: the species, Argentina to Mexico; *jacarini jacarini*, Argentina to Cayenne and the Orinoco; *atronitens*, the Orinoco and Guiana to Mexico; *pacifica*, western Peru and western Ecuador.

Two forms of this species, with a connectant series of intermediates, are found on the coast of Ecuador. Specimens from Esmeraldas and Manaví are nearer *atronitens*, the northern race. All have the lower wing-coverts black, but in two there is a whitish margin to the inner border of the primaries. One Guayaquil male is typical of *atronitens*, but the remaining birds in the series may be referred to *pacifica*, though they appear to show the influence of *atronitens* in their blacker wing-quills. It is thus evident that the change from *atronitens* to *pacifica* is so gradual that it is quite impossible to draw a line definitely separating their respective ranges.

(3791) *Amaurospiza æquatorialis* Sharpe

Amaurospiza æquatorialis SHARPE, Cat. Bds. B. M., XII, 1888, p. 157 (Pallatanga, Balzar, Ec.).

Junction Rios Coco and Chimbo, 1♂.

RANGE.—Known only from the localities cited in western Ecuador.

Our single specimen is adult except for three or four brown feathers of the immature plumage. It is somewhat paler than *Amaurospiza concolor* and has the lower wing-coverts white. The last-named species is known from the Canal Zone to Nicaragua, but the genus has not as yet been recorded from Colombia.

(3796) *Pitylus grossus* (Linn.)

Loxia grossus LINN., Syst. Nat., I, 1766, p. 307 (Cayenne).

Pitylus grossus, SCL., 1860e, p. 293 (Esmeraldas); B. & T., 1883, p. 549 (Chimbo); HART., 1898, p. 483 (Cachavi); S. & F., 1899a, p. 22 (Valle del Zamora; Rio Peripa). Bucay (Rhoads).

Esmeraldas, 2♂, 1♀; Rio de Oro, 1♀; Chimbo, 1♀; Naranjo, 2♂; La Chonta, 2♂, 2♀; below San José, 3♂, 1♀; Rio Suno, 3♂, 3♀.

RANGE.—Tropical Zone, Bolivia to Cayenne and Nicaragua.

Western Ecuadorean females appear to average grayer below than those from east of the Andes, while three females from southeastern Peru are decidedly more olivaceous below than any other specimens in our collection, representing the greater part of the range of the species. Mr. Todd has separated the Costa Rican bird on the ground of darker coloration as *P. g. saturatus* (Proc. Biol. Soc. Wash., 1922, p. 91).

(3797a) *Pitylus nigriceps* Chapm.

Pitylus nigriceps CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 322 (Loja, Ec.).

Celica, 1♂, 1♀; Loja, 1♂. Peru: Palambla, 3♂.

RANGE.—Southwestern Ecuador and northwestern Peru, apparently in the Subtropical Zone.

Specific Characters.—Not closely related to any described species of *Pitylus* but most nearly resembling *P. fuliginosus*, from which it differs in having the head as well as throat black, the outer tail-feathers tipped with white, and in other characters.

It is probable that this species is a northern representative of the bird commonly known as *Saltator albociliaris*. From that species it differs in having the whole head and throat black, but in four of our six specimens it is significant that the feathers of the center of the throat are white basally. This condition is almost reached by a specimen of *albociliaris* from the Huaracundo Cañon of southern Peru. There is, however, no suggestion of the white postocular stripe of *albociliaris*, and the black of the crown extends to the nape where it is sharply defined from the gray back. Of perhaps more importance than these

color characters is the larger, more robust, and swollen bill of *nigriceps*, thereby emphasizing its relationships to *Pitylus*. Of the closeness of this relationship there can be no doubt. The commissural 'tooth' in *P. grossus*, type of the genus, is more pronounced than in *nigriceps*, but it is present in all but one of our specimens of the latter, while in actual size the bill of *nigriceps* is larger than that of *grossus*, though proportionately of approximately the same dimensions.

In its smaller bill, *albociliaris* evidently approaches *Saltator*, but as compared with *S. maximus* its relationships seem to be nearer *Pitylus*, and when we consider its obvious affinities to *P. nigriceps*, including the pityline color of the bill, the argument seems decidedly in favor of following its describers by placing it in the genus *Pitylus*. The difficulty of drawing the line in generic determinations is well illustrated by the fact that this course will necessitate our going a step further and including '*Saltator*' *aurantiistrostris*, an obvious representative of *albociliaris*. The three (including *nigriceps* and *albociliaris*) together thus form an interesting link between the types of *Pitylus* and *Saltator*.

(3802) ***Saltator humeralis* (Lawr.)**

Pitylus humeralis LAWR., Ann. Lyc. Nat. Hist. N. Y., VIII, 1867, p. 467 ("New Granada, St. Fé de Bogotá"; Napo).

RANGE.—Eastern Colombia and eastern Ecuador.

We have only the type of this species. In its rounded, decurved culmen and more pointed wings, it appears to differ generically from *Saltator* though apparently nearer that genus than to *Pitylus*.

(3803) ***Saltator maximus* (P. L. S. Müll.)**

Tanagra maximus P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 159 (Cayenne).

Saltator magnus, SCL., 1858a, p. 72 (Napo); 1859a, p. 138 (Pallatanga); 1860a, p. 65 (Pallatanga); 1860d, p. 274 (Babahoyo); 1860e, p. 293 (Esmeraldas); Tacz., 1877, p. 332 (Palma); B. & T., 1883, p. 548 (Chimbo); 1885, p. 84 (Yaguachi); HART., 1898, p. 483 (Chimbo); S. & F., 1899a, p. 21 (Valle del Zamora; Gualea; Babahoyo; Vines; Rio Peripa); GOODF., 1901, p. 472 (Santo Domingo; San Nicolas); MEN., 1911, p. 77 (Gualea); L. & R., 1922, p. 79 (road to Nanegal).

Saltator cayanus santaritensis CHUBB, Ann. & Mag. Nat. Hist., 1921, p. 446 (Santa Rita).

Bucay; Huigra (Rhoads).

Esmeraldas, 3♂, 1♀; Mindo, 1♀; Manaví, 4♂, 2♀; Duran, 1♂, 2♀; Naranjo, 4♂; Bucay, 1♂, 1♀; Pallatanga, 2♂, 1♀; Rios Coco and Chimbo, 2♂; Rio Ju-

bones, 2 ♂, 1 ♀; Santa Rosa, 1 ♂; La Puente, 1 ♀; El Chiral, 1 ♂; La Chonta, 4 ♂; Portovelo, 3 ♂, 2 ♀; Zaruma, 1 ♂, 3 ♀; Punta Santa Ana, 2 ♂; Las Piñas, 1 ♀; Salvias, 1 ♂; Alamor, 6 ♂, 2 ♀; Zamora, 4 ♂; Macas region, 2 ♀; below San José, 4 ♂, 2 ♀; Rio Suno, 1 ♂, 2 ♀.

RANGE.—Tropical Zone, ranging upward in clearings to the Subtropical; Bolivia to Guiana and Colombia.

Ecuadorean birds agree with Guiana specimens. Indeed, I detect no racial variation in a large series of this species from throughout its range.

(3804a) *Saltator atripennis caniceps* Chapm.

Saltator atripennis caniceps CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 182 (Fusugasugá, Col.).

Saltator atripennis, SCL., 1859a, p. 138 (Pallatanga); 1860c, p. 85 (Nanegal); B. & T., 1883, p. 548 (Chimbo); GOODF., 1901, p. 472 (Gualea); L. & R., 1922, p. 79 (road to Gualea).

Bucay; Huigra (Rhoads).

Gualea, 2 ♂; La Chonta, 1 ♀.

RANGE.—Subtropical Zone; East Andes of Colombia and West Andes of Ecuador; *S. a. atriceps*, West Andes and west slope of Central Andes of Colombia; not recorded from eastern Ecuador.

This species has a singular distribution, the western Ecuadorean form agreeing with that of eastern, rather than with the one of western Colombia. Our three Ecuadorean specimens are fairly typical.

(3809) *Saltator caeruleus azaræ* d'Orb.

Saltator azaræ D'ORB., Voy. Amer. Merid., Ois., 1836, p. 287 (Moxos and Santa Cruz, Bol.); SCL., 1858a, p. 72 (Napo).

Saltator superciliaris, S. & F., 1899a, p. 21 (Gualaquiza); GOODF., 1901, p. 472 (Rio Coca).

Below San José, 4 ♀.

RANGE.—Tropical Zone: the species, Paraguay to the Caribbean; the race, Bolivia to Colombia; unknown in western Ecuador.

Both *S. olivascens* and *S. mutus* should, apparently, be included in this group.

(3818) *Saltator striatipectus*¹ *flavidicollis* Scl.

Saltator flavidicollis SCL., P. Z. S., 1860, p. 274 (Babahoyo, Ec.); B. & T., 1883, p. 548 (Yaguachi); S. & F., 1899a, p. 22 (Vinces).

¹ I consider "*striatipictus*," the original spelling, a typographical error. Lafresnaye obviously intended to employ *striatipectus* just as he wrote *maculipectus* as the name for the next species in his paper.

Saltator olivascens, TACZ., 1877, p. 320 (Lechugal).

Saltator albicollis, HART., 1898, p. 483 (Ibarra); S. & F., 1899a, p. 22 (La Concepcion); GOODF., 1901, p. 472 (Guailea).

Saltator striatipectus striatipectus, L. & R., 1922, p. 79 (road to Guailea).

Bucay (Rhoads).

Manaví, 2♂ ad., 1♀ ad.; Daule, 1♂ ad.; Chongoncito, 1♂ ad., 1♂ im.; Guayaquil, 1♀ ad.; Puná Is., 2♂ ad., 2♂ im., 1 juv.; Santa Rosa, 1♂ ad., 2♂ im., 2♀ ad., 1♀ im., 1 ad.; Portovelo, 4♂ ad., 1♂ im., 2♀ ad., 1 ad.; Zaruma, 1♂ ad.; Las Piñas, 1♂ ad.; Guainche, 1♂ ad., 1♀ im.; Alamor, 1♂ ad., 2♂ im., 3♀ im.; Cebollal, 2♂ ad., 1♂ im. Peru: Milagros, Piura, 1♂ ad., 1♀ ad.; Paletillas, 2♂ ad., 1♀ ad., 1♀ im.; Palambla, 3♀ ad., 1♀ im.

RANGE.—Chiefly Arid Tropical Zone: the species, Peru to Trinidad west of East Andes; north to southern Costa Rica; the race, western Ecuador and north-western Peru. (See Fig. 10.)

The members of the *S. striatipectus* group, including all the forms of the genus which in adult or immature plumage are streaked, have a singular distribution, and present some unusual variations. They are active birds of semi-arid regions or clearings, and are absent from forest-covered areas.

Possibly, because of their non-sedentary habits rather than through more profound and less easily explicable distributional influences, they are found in at least four islands or groups of islands and in one isolated valley, while there appears to be no connection between the ranges of the Colombian and Ecuadorean forms. The segregation resulting from this type of distribution, acting on a tendency to vary, has produced a number of forms at least one of which shows a combination of characters unlike anything with which I am familiar.

Beginning with the most widely distributed race, the forms of the group with their distribution are as follows (all are found in the Tropical Zone; see Fig. 10):

1. *Saltator striatipectus striatipectus*.—Colombia west of the East Andes, exclusive of heavily forested areas; east through northern Venezuela to Trinidad.

2. *Saltator gadalupensis*.—Islands of St. Lucia, Dominica, Martinique, Guadeloupe and Nevis, Lesser Antilles.

3. *Saltator striatipectus isthmicus*.—Isthmus of Panama.

4. *Saltator striatipectus furax*.—Southwestern Costa Rica.

5. *Saltator striatipectus speratus*.—Pearl Islands, Bay of Panama.

6. *Saltator striatipectus flavidicollis*.—Western Ecuador and West Andean slopes of northwestern Peru.

7. *Saltator striatipectus immaculatus*.—Western Peru, from Piura at least to Pisco.

8. *Saltator striatipectus peruvianus*.—Arid Marañon Valley and its tributaries.

It will be observed that the species is unknown east of the Andes and, consequently, that the Marañon Valley form (found only above the Pongo de Manseriche) has either been derived from the Pacific coast or else the Pacific coast forms have been derived from the Marañon.

Assuming that the seven forms listed above are all representatives of one species, the wide range and racial variation shown outside the Marañon indicate that the former view is the more nearly correct.

With the exception of *flavidicollis* and *immaculatus*, the forms mentioned are streaked below at all ages, and their racial variations consist chiefly in tone of general coloration, character of streaking below, and extent of the superciliary. Even the geographically far-removed *S. guadalupensis* can almost be matched by some mainland specimens. But, on the coasts of Ecuador and Peru, forms occur in which the adults have the underparts immaculate and only the young are streaked below. These forms apparently intergrade with each other, and while the more northern (*flavidicollis* of Ecuador) apparently has no geographic contact with and does not directly intergrade with *striatipectus* of Colombia, it does intergrade with *peruvianus* of the Marañon Valley, and the latter intergrades with *striatipectus striatipectus* by individual variation.

It remains to present the facts demonstrated by our large series of *flavidicollis* and *immaculatus* on which, in part, the preceding statements are based.

Adult *flavidicollis* (twenty-eight specimens) has the underparts white washed with yellow and wholly without or with but a few fine streaks; the superciliary yellowish white, broad and conspicuous to above the auriculars; the bill black, the terminal third paler, but not, as a rule, sharply contrasted with the basal two-thirds.

Juvenal and postjuvenal specimens are heavily streaked below as in *striatipectus*; the superciliary is less conspicuous, and the end of the bill is usually bright yellow, sharply defined from the black base. We have only one specimen (No. 124993, Puná Island, April 1; whence we have also postjuvenal and adult specimens) in juvenal plumage, while some eighteen are in postjuvenal, or a succeeding plumage. Some of these specimens still have the narrow rectrices of the juvenal plumage, which are doubtless retained at the postjuvenal molt; in the remainder these feathers are as broad as in the adult. These specimens have, I assume, passed through a partial prenuptial molt and are in their first breeding plumage. It is apparent, therefore, that the streaked underparts are not lost before the second year. Unfortunately, we have no specimens proving absolutely at what age the unstreaked plumage is acquired.

I base my belief, therefore, that the streaked birds are the young of unstreaked birds on the fact that only streaked birds show evidences of immaturity, all the unstreaked birds being fully mature, and on the further fact that some obviously adult birds have the underparts distinctly if finely streaked. In short, while I cannot demonstrate the succession of plumages from streaked to unstreaked with molting specimens, our series does show the intergradation of these plumages by individual variation.

Furthermore, there is to be considered the evidence furnished by *S. striatipectus immaculatus* of the coast of Peru. Our series demonstrates the intergradation of this race with *flavidicollis*. It also shows that *immaculatus*, like *flavidicollis*, is streaked below in juvenal, first-winter and first-summer plumages. The streaks are less pronounced than in *flavidicollis*, but they nevertheless clearly represent the analogous plumage of the Ecuadorean form. In this instance we can connect by molt the streaked with the unstreaked plumage, and if this is true in *immaculatus* it is more than probable that it is also true of an intergrading racial representative in an adjoining area.

It is a pleasure to add that my colleagues, Dr. J. Dwight and W. DeW. Miller, on independent examination of this material, have each reached the conclusion just presented.

It remains to show the intergradation of *flavidicollis* with *peruvianus* and of the latter with *striatipectus* of Colombia. The first is demonstrated by comparison of a series from Palambra on the western slope of the Andes east of Piura, with one from Huancabamba on the eastern side of the same range.

The Huancabamba birds (6, August; 6, Nov.-Dec.) have been compared with Cory's topotypical series of *peruvianus*, confirming Bangs and Noble's statement of their identity. They differ from the streaked Palambra birds chiefly in having no, or but a slightly developed, superciliary and in being more heavily streaked below.

Of *peruvianus* I have twenty-eight specimens, all streaked below. As a rule, the superciliary is absent, but when traces of it are present and the tip of the bill is not perceptibly paler than the base, such specimens can be matched by Colombian examples.

I have gone into this matter at some length for in my experience the case is unique. I believe that I have correctly stated the facts shown by our specimens, but I have not explained them, and confess that I do not yet understand the two phases streaked and unstreaked, of the Pacific coast forms. The conclusions drawn from these facts are presented on page 68.

(3825) *Spinus*¹ *xanthogaster xanthogaster* (Du Bus)

Chrysomitris xanthogastra DU BUS, Bull. R. Acad. Belg., XXII, 1855, p. 152 (Ocaña, Col.); SHARPE, Cat. Bds. B. M., XII, 1888, p. 210 (sp. "r" Ecuador).

La Chonta, 1 ♀.

RANGE.—Subtropical Zone: the species, Costa Rica to Bolivia; the race, Costa Rica to Ecuador.

The specimen above listed appears to be the only definite record for Ecuador. The species has not been reported from Peru but reappears in Bolivia as *S. x. stejnegeri*.

(3834a) *Spinus peruanus paulus* Todd

Spinus peruanus paulus TODD, Ann. Carn. Mus., XVII, Pt. I, 1926, p. 51 (Zamora, Ec.)

Chrysomitris icterica, SCL., 1860a, p. 66 (Pallatanga).

Chrysomitris capitalis, B. & T., 1883, p. 551 (Sarayacu); 1884, p. 294 (Cayandeled; Cechce); S. & F., 1899, p. 357 (Cuenca).

Chrysomitris stemiradzki, B. & T., 1884, p. 313 (Cuenca).

Pallatanga, 1 ♂; Bucay, 1 ♂; above Bucay, 1 ♂; Portovelo, 1 ♂, 1 ♀; El Paso, 6 ♂, 3 ♀; Alamor, 3 ♂, 1 ♀; Loja, 1 ♀; Zamora, 3 ♂ (inc. type), 1 ♀. Peru: Milagros, 1 ♂, 1 ♀; Palambla, 3 ♂, 1 ♀; Huancabamba, 4 ♂, 2 ♀.

RANGE.—Tropical to Temperate Zone: the species, southern Peru to southern Ecuador; the race, northern Peru and southern Ecuador.

Spinus peruanus has a remarkable range, including the arid western and humid eastern base of the Andes with all the intervening zones except the Paramo. Throughout the widely and highly diversified area that it inhabits it presents essentially no racial variation in color, but in the more northern part of its range becomes perceptibly smaller, a fact discovered by Mr. Todd and recognized by him with the name *paulus*. The confusing relationships of *peruanus* with *magellanicus* are treated by Mr. Todd.

(3835) *Spinus capitalis* (Cab.)

Chrysomitris capitalis CAB., J. f. O., 1866, p. 160 (Ecuador); B. & T., 1885, p. 85 (Mapoto); S. & F., 1899, p. 27 (Nanegal; Tumbaco; Pun; Cuenca).

Chrysomitris icterica, SCL., 1858, p. 552 (Riobamba).

Chrysomitris sclateri SHARPE, Cat. Bds. B. M., XII, 1888, p. 200 (Riobamba).

Spinus sclateri, B. & T., P. Z. S., 1896, p. 353 (Mapoto).

Chrysomitris icterica capitalis, HART., 1898, p. 484 (Ibarra); GOODF., Ibis, 1901, p. 475 (Quito; Chillo).

¹ Mr. Todd has kindly permitted me to see the MS. of his important revision of the Neotropical forms of this genus, and I have followed his determinations.

Chrysomitris sp., S. & F., 1899, p. 28 (La Concepcion; Chota).

Spinus capitalis, L. & R., 1922 (Quito; Tumbaco; Chaupieruz; Cumbaya).

Spinus ictericus capitalis, MEN., 1911, p. 78 (Tumbaco; Santa Rosa); 1912, p. 390 (Baños).

Nono, 1 ♂; Pichincha, 1 ♂, 1 ♀; near Quito, 3 ♂; Cumbaya, 1 ♂; Papallacta, 1 ♂; Mocha, 2 ♂, 1 ♀; Chimborazo, 1 ♂; Cuenca, 1 ♂; El Paso, 1 ♂.

RANGE.—Temperate Zone, Ecuador (Todd records one specimen from Chinchao, central Peru).

The complicated history of this species has been admirably disentangled by Mr. Todd who has examined Cabanis's type.

(3836) *Spinus olivaceus* Berl. & Stolz.

Spinus olivaceus BERL. & STOLZ., Ibis, 1894, p. 337 (Vitoc, Peru).

Zamora, 1 ♂. (Cherrie).

RANGE.—Eastern Bolivia to eastern Ecuador.

Our single specimen of this species (not before recorded from Ecuador) has been identified by Mr. Todd by comparison with fifteen other specimens including topotypes.

(3839) *Spinus siemiradzkii* (Berl. & Tacz.)

Chrysomitris siemiradskii BERL. & TACZ., P. Z. S., 1883, pp. 536, 551, pl. 1 (Guayaquil); ? SHARPE, Cat. Bds. B. M., XII, 1888, p. 221 (Balzar).

Puna, 1 ♂.

RANGE.—Arid Tropical Zone; southwestern Ecuador.

Taczanowski records¹ this species from Tumbez on the basis of a sight identification by Stolzmann. Our specimens from Milagros and Palambla, Province Piura, however, are referable to *peruanus paulus* Todd, and the extension of the known range of *siemiradskii* to Peru should, in my opinion, be based on the examination of specimens. Our single example has been compared by Mr. Todd with the type and two topotypes, the four making all the specimens of this species examined by him.

Sharpe's record from Balzar also requires confirmation. It is difficult to account for the origin of this species. While known only from the arid Tropical Zone, the localities in which it occurs are no more arid than others from which we have specimens of *peruanus* (e. g. Milagros and southward on the coast to the Chilean boundary). The fact that

¹ Orn. Pér., III, 1884, p. 50.

it has not yet been found at the same locality as *peruanus paulus* suggests that it may represent that species. It differs from *paulus*, however, not only in its deeper color but smaller size, though I do not find a material difference in relative length of wing and tail between the two forms.

(3841) *Spinus psaltria columbianus* (Laf.)

Carduelis columbianus LAFR., Rev. Zool., 1843, p. 292 (Colombia).

Chrysomitris columbiana, S. & F., 1899a, p. 27 (Niebli).

'Gualea,' 1♂.

RANGE.—The species, western United States to Peru.

This specimen has the outer three pairs of tail-feathers white on the basal two-thirds of the inner web, and represents therefore the *croceus* type of coloration, but I am by no means convinced of the distinctness of this form from *columbianus* and use therefore the older name.¹

A specimen from El Tambo, west of Huancabamba, and another from Huancabamba have but little white in the tail, while in other specimens from these localities the white is well developed, showing that this is a variable character throughout the range of the species.

(3842) *Sicalis flaveola valida* Bangs & Penard

Sicalis flaveola valida BANGS & PENARD, Bull. M. C. Z., 1921, p. 396 (Sullana, Peru).

Sycalis flaveola, TACZ., 1877, p. 322 (Tumbez); B. & T., 1883, p. 552 (Yaguachi).

Guayaquil, 2♂ ad.; Santa Rosa, 3♂ ad., 3♂ im., 3♀ ad.; Portovelo, 2♂ ad., 1♀ im.; Casanga, 1♂ ad.; Lunamá, 1♂ ad.; Rio Pindo, 1♀; Loja, 1♂.

RANGE.—Tropical Zone: the species, Brazil to Guiana and Colombia; the race, southwestern Ecuador and western Peru.

In addition to the birds above listed we have also a large series from northwestern Peru, including topotypes from Sullana. Compared with an excellent series from the lower Orinoco, I find no differences in color; the difference in size shown by Bangs and Penard appears to be constant and to distinguish Brazilian and Colombian as well as Venezuelan specimens. Huancabamba specimens belong with this race, indicating (in connection with the apparent absence of the species in western Colombia) its Marañon origin on the Pacific coast.

¹ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 564.

(3849a) *Sicalis luteiventris bogotensis* Chapm.

Sicalis luteiventris bogotensis CHAPM., Amer. Mus. Novit., No. 143, 1924, p. 14 (Bogotá, Col.).

Sycalis luteola, B. & T., 1884, p. 294 (Cechce); 1885, p. 85 (between Riobamba and Chimborazo).

Sycalis arvensis luteiventris, HART., 1898, p. 484 (Ibarra; Cayambe); GOODF., 1901, p. 475 (Quito; Chillo Valley); MEN., 1911, p. 78 (Tumbaco); L. & R., 1922, p. 79 (above Quito).

Sycalis luteiventris, S. & F., 1899a, p. 28 (Tumbaco).

Cajabamba; Riobamba; Cumbaya (Rhoads).

Valle Cumbaya, 4♂ ad.; Pichincha, 2♀ ad.; Cerro Huamani, 1♀; Cochaseca, 1♂ im.

Subspecific Characters.—Most nearly resembling *S. l. luteiventris* (Meyen) of the tableland of southern Peru, and *S. l. arvensis* (Kittl.) of Chile, but smaller, the yellow areas slightly brighter, the outer pair of rectrices sometimes with a white subterminal patch.

RANGE.—Temperate Zone; Ecuador and Colombia.

(3852) *Gnathospiza raimondii* Tacz.

Gnathospiza raimondii TACZ., P. Z. S., 1877, pp. 320, 750, pl. xxxvi, fig. 1 (Tumbez, Peru); B. & T., 1883, p. 549 (Guayaquil).

Sycalis taczanowskii SHARPE, Cat. Bds. B. M., XII, 1888, p. 385 (Tumbez, Peru).

Santa Elena, 3♂, 2♀.

RANGE.—Arid Tropical Zone, northwestern Peru to southwestern Ecuador.

Dr. Sharpe's statement (*loc. cit.*) that "this species is nothing more than a thick-billed *Sycalis*" does not, I feel, do justice to its characters. The bill differs from that of *Sicalis*, not alone in size but also in form, and in the light of present-day standards, at any rate, affords pronounced grounds for generic recognition. Nevertheless, the relation to *Sicalis* is obvious and leads one to speculate on the causes which have transformed a *Sicalis* into a *Gnathospiza*, a *Sporophila* into a *Neorhynchus*.

(3854a) *Ammodramus savannarum caucæ* Chapm.

Ammodramus savannarum caucæ CHAPM., Bull. A. M. N. H., XXXI, 1912, p. 161 (Cali, Col.).

Coturniculus savannarum passerinus, MEN., 1911, p. 79 ("Quito").

RANGE.—The species, northern Ecuador to eastern United States; the race, northern Ecuador and western Colombia.

We have no Ecuadorean specimens, but it is probable that the form of northern Ecuador, where the species is evidently very rare, is that of western Colombia.

(3856a) *Myospiza aurifrons zamoræ* Chapm.

Myospiza aurifrons zamoræ CHAPM., Amer. Mus. Novit., No. 160, 1925, p. 2 (Zamora, Ec.).

Coturniculus peruanus, SCL., 1858b, p. 455 (Gualaquiza); B. & T., 1885, p. 85 (Machay; Mapoto); S. & F., 1899a, p. 27 (Gualaquiza; Valle de Zamora).

Ammodramus peruanus, HART., 1898, p. 485 (Cayambe).

Zamora, 7 ♂, 6 ♀; Rio Suno, 2 ♂.

Subspecific Characters.—Similar to *M. a. aurifrons* (Spix) of Brazil, but very much darker above, the streaks on the crown and back broader, blacker, better defined and more continuous, their brown margins deeper; remiges and rectrices darker; lower parts grayer.

RANGE.—Tropical Zone: the species, Bolivia to Colombia and lower Amazon; the race, central Peru to Colombia.

(3860) *Rhynchospiza stolzmanni* (Tacz.)

Hæmophila stolzmanni TACZ., P. Z. S., 1877, pp. 323, 750, pl. xxxvi, fig. 2 (Tumbez, Peru).

Casanga, 4 ♂, 2 ♀. Peru: Pílares, 1 ♂.

RANGE.—Arid Tropical Zone; northwestern Peru and southwestern Ecuador.

This species bears so close a resemblance to *Aimophila sumichrasti* of southern Mexico that the possibility of its Middle American origin must be taken into consideration. Possibly we have here a case in distribution not unlike that presented by *Melopelia asiatica*.

(3869) *Poospiza bonapartei* Scl.

Poospiza bonapartei SCL., P. Z. S., 1867, p. 341, pl. xx, (Lima, Peru); S. & F., 1899a, p. 27 (Puntilla de Santa Elena); TACZ., 1877, p. 322 (Tumbez).

La Plata Is., 11 ♂, 5 ♀; Santa Elena, 1 ♂; Santa Clara Is., 1 ♂.

RANGE.—Arid Tropical Zone from central Peru to western Ecuador.

The bill in these La Plata Island specimens averages larger than in a topotypical series with which they apparently agree in color, but their plumage is so worn that the latter statement cannot be made with certainty. This species appears to represent *P. torquata* of the arid Temperate Zone of Bolivia. Possibly it is nearer *P. pectoralis* Todd of the Province of Cordillera, Bolivia.

(3882) *Brachyspiza capensis* subsp.

Pyrgita peruviana LESS., Nov. Zoöl., p. 45 (Lima, Peru).

Zonotrichia pileata, SCL., 1858b, p. 454 (Cuenca); 1858c, p. 552 (Riobamba); 1859a, p. 140 (Pallatanga); 1860b, p. 76 (Panza); B. & T., 1883, p. 551 (Cayandeled); 1884, p. 294 (Ceche); S. & F., 1899a, p. 26 (Pun; Cuenca; La Concepcion; Lloa; Valle del Chillo; Sigsig); GOODF., 1901, p. 474 (Quito; West Andes locally up to 11,000 ft., rarely down to 6,000 ft. at Milligalli; not in eastern Andes).

Zonotrichia capensis, HART., 1898, p. 485 (Cayambe).

Brachyspiza capensis peruviana, L. & R., 1922, p. 79 (Quito; Cumbaya).

Junction of Chanchan and Chiguancay; Huigra; Chunchi; Chambo; Riobamba; Hacienda Garzon; Cumbaya; Cajabamba; near Quito (Rhoads).

Pichincha, 1 ♂; Quito, 1 ♀; Cumbaya, 1 ♀; Mocha, 1 ♂; Chimborazo, 2 ♀; Huigra, 1 ♂; Chical, 1 ♀; Zaruma, 2 ♂, 2 ♀; Bestion, 1 ♂, 2 ♀; El Paso, 2 ♂, 4 ♀; Salvias, 1 ♂; Punta Santa Ana, 1 ♂; Taraguacocha, 2 ♂; San Bartolo, 1 ♂; Alamor, 6 ♂, 2 ♀; Celica, 1 ♂; Loja, 3 ♂; above Baeza, 2 ♂, 1 ♀; 2 ♂ juv.; 1 ♀ juv. (Dec. 19-26); Oyacachi, 4 ♂, 2 ♀; below Papallacta, 1 ♂.

RANGE.—Throughout the greater part of South America north to southern Mexico and the island of Santo Domingo.

Racial variation in *B. capensis* is too broad and complicated a problem to be considered locally, and I therefore leave for a future occasion or a future worker the exceedingly interesting task of determining the inter-relationships of our several hundred specimens of this group. To describe the obviously new forms¹ in our collection without working out their ranges would impose an unfair and unnecessary handicap on a monographer of the species.

In Ecuador, *Brachyspiza* is chiefly a bird of the Temperate Zone, coming down in semi-arid regions to the altitude of the Subtropical Zone.

(3893) *Arremonops conirostris chrysoma* (Scl.)

Embernagra chrysoma SCL., P. Z. S., 1860, p. 275 (Babahoyo, Ec.); 1860e, p. 293 (Esmeraldas); Tacz., 1877, p. 332 (Palmar); GOODF., 1901, p. 475 (Gualea).

Embernagra striaticeps, B. & T., 1883, p. 551 (Chimbo); 1885, p. 85 (Yaguachi).

Embernagra striaticeps chrysoma, HART., 1898, p. 485 (Cachaví; Chimbo; Paramba); MEN., 1911, p. 79 (Santo Domingo).

Arremonops conirostris chrysoma, L. & R., 1922, p. 79 (above Mindo; road to Nanegal).

Bucay; junction of Chanchan and Chiguancay (Rhoads).

Esmeraldas, 2 ♂; Manaví, 3 ♂; Mindo, 2 ♂, 2 ♀; Duran, 2 ♂, 1 ♀; Bucay, 4 ♂; Chimbo, 1 ♂, 1 ♀; Rio Jubones, 1 ♂; Santa Rosa, 2 ♂, 1 ♀; La Chonta, 2 ♀; Zaruma, 2 ♂; Portovelo, 5 ♂, 4 ♀, 1 ♀ juv. (July 13); Guainche, 2 ♂, 1 ♀; Cebollal, 3 ♂; Alamor, 1 ♂, 1 ♀.

¹ There are probably two forms in Ecuador, neither one of which is *peruviana*, of which we now have a wholly adequate series.

RANGE.—Tropical Zone: the species, western Ecuador to Honduras and Venezuela; the race, western Ecuador and southwestern Colombia.

I detect no racial variation in our Ecuadorean specimens. I have already called attention to the peculiar distribution of the races of this group (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 569).

(3925a) *Phrygilus unicolor grandis* Chapm.

Phrygilus unicolor grandis CHAPM., Bull. A. M. N. H., XXXIV, 1915, p. 651 (Santa Isabel, 12,500 ft., Central Andes, Col.).

Phrygilus unicolor, JARD., 1849, p. 44 (Andes at Quito, 13,000–14,000 ft.); SCL., 1860b, p. 76 (Panza; Guagua Pichincha); B. & T., 1885, p. 85 (San Rafael; Chimborazo); S. & F., 1899a, p. 25 (Quinoas, Cuenca; Paredones; Chaupi; Monte Pichincha; Vallevecioso); GOODF., 1901, p. 474 (Quito; Aloag); RHOADS, 1912, p. 142 (Paramo of Pichincha); L. & R., 1922, p. 79 (Pichincha, 14,000–15,000 ft.).

Phrygilus unicolor unicolor, MEN., 1911, p. 80 (Mozo and crater of Pichincha).

South side of Pichincha, 11,300–13,500 ft.; above Chambo, 12,800 ft. (Rhoads).

Pichincha, 4♂, 4♀; Urbina, 4♂, 2♀; Chimborazo, 12♂, 8♀; Cochaseca, 1♀; Taraguacocha, 1♀; Bestion, 4♂, 4♀; Cerro Huamani, 6♂, 1♀; above Oyacachi, 1♂, 1♀.

RANGE.—Paramo Zone: the species, Chile to Venezuela; the race, Ecuador and central Colombia.

Ecuadorean specimens are intermediate between *grandis* of the north end of the Central Andes in Colombia and *unicolor unicolor* of Peru, but possibly average nearer the former.

(3928a) *Phrygilus alaudinus bipartitus* Zimmer

Phrygilus alaudinus bipartitus ZIMMER, Field Mus. Pub. No. 218, 1924, p. 61 (Cajamarca, Peru).

Phrygilus alaudinus, SCL., 1858c, p. 552 (above Punin); 1860c, p. 87 (Calacali); B. & T., 1884, p. 294 (Cechce); 1885, p. 85 (Chimborazo); HART., 1898, p. 485 (Cayambe); S. & F., 1899a, p. 25 (Cañar; La Concepcion; Tumbaco); GOODF., 1901, p. 474 (Quito; Chillo Valley); L. & R., 1922, p. 80 (Quito; Chaupieruz).

Riobamba; Cajabamba (Rhoads).

Santa Elena, 1♂; Lloa, 1♂ ad.; Tumbaco, 1♂; Chimborazo, 2♂ ad.; El Paso, 1♀.

RANGE.—Chiefly Temperate Zone: the species, Chile to northern Ecuador; the race, central Peru, north on the tableland to Quito, on the coast to Santa Elena.

Ecuadorean specimens from the tableland exhibit the characters of this well-marked race and agree with others from Accobamba near Tarma, Peru. An adult male from Santa Elena illustrates the tendency of Temperate Zone species to occur on the coast of Peru and southwestern Ecuador. It is decidedly paler than specimens from the mountains.

(3931) *Phrygilus plebejus ocularis* Scl.

Phrygilus ocularis SCL., P. Z. S., 1858, p. 454, pl. clxv (Cuenca, Ec.); 1858c, p. 552 (Riobamba); 1860c, p. 87 (Calacali); HART., 1898, p. 485 (Cayambe); S. & F., 1899a, p. 26 (Tambo di Quinoas; Cuenca; Cañar; La Concepcion; Tumbaco; Valle de Chillo); GOODF., 1901, p. 474 (Quito; Chillo Valley); MEN., 1911, p. 81 (Tumbaco).

Phrygilus plebejus, B. & T., 1884, p. 294 (Alausi).

Phrygilus plebejus ocularis, L. & R., 1922, p. 80 (Tumbaco).

Huigra; Riobamba; Cumbaya (Rhoads).

Guallabamba Cañon (6,200 ft.), 1 ♂; Tumbaco, 3 ♂, 2 ♀; Cumbaya, 4 ♂, 3 ♀; Bestion, 1 ♂, 4 ♀; Mocha, 1 ♂; Chimborazo, 2 ♂, 1 ♀; Casanga, 5 ♂, 2 ♀; Lunamá, 1 ♀; Loja, 1 ♀.

RANGE.—Chiefly Temperate Zone: the species, northern Argentina to Ecuador; the race, Ecuador.

Beyond its smaller size I can find no constant difference between this race and *plebejus*. It is surprising to find this species descending to the hot Casanga Valley.

(3935) *Spodiornis jardinii jardinii* Scl.

Spodiornis jardinii SCL., P. Z. S., 1866, p. 323 (Ecuador); GOODF., 1901, p. 474 (Milligalli).

Spodiornis jardinei, B. & T., 1885, p. 84 (La Union).

Junction of Chanchan and Chiguancay (Rhoads).

Below Calacali, 1 ♂ ad.; upper Sumaco, 1 ♂ ad.; below San José, 1 ♀; above Baeza, 1 ♀.

RANGE.—Subtropical Zone; Bolivia to Colombia.

Ecuadorean males and females agree with others from Chaupe and Chelpes, Peru, and a young male from southern Colombia agrees with one from Chaupe, northern Peru, and another from Roquefalta, Bol. A nearly adult male from Costa Rica, in Dr. Dwight's collection, agrees with Ecuadorean specimens in size and essentially in color. It measures, wing 72 mm., tail 48 mm., culmen 13 mm. Two Ecuadorean males measure, wing 70 to 71 mm.; tail 45 to 47 mm., culmen 13 to 13.5 mm.

It would appear, therefore, that the Costa Rican bird should be referred to *jardinii jardinii* rather than to *Spodiornis* (*Haplospiza*) *jardinii uniformis* of Mexico. The latter, according to Sclater and Salvin, measures, wing 76 mm., tail 51 mm., and is apparently merely a large form of *jardinii jardinii*. *Haplospiza unicolor* evidently represents *jardinii* in southeastern Brazil. The bill in *unicolor* averages stouter than in *jardinii*, but in some specimens this difference is barely evident and they can then be distinguished in form by the longer, more pointed wing of *jardinii*. The male in *unicolor* is a somewhat greener gray, the female more olivaceous than in *jardinii*.

(3946) *Rhodospingus cruentus* (Less.)

Tiaris cruentus LESS., Rev. Zoöl., 1844, p. 435 (Guayaquil).

Coryphospingus cruentus, SCL., 1860, p. 276 (Babahoyo); Tacz., 1877, p. 322 (Tumbez); B. & T., 1883, p. 551 (Guayaquil); 1885, p. 84 (Yaguachi); GOODF., 1901, p. 474 (Santo Domingo); S. & F., 1899a, p. 26 (Savana de Guayaquil; Vinces; Rio Peripa).

Rhodospingus mentalis SHARPE, Cat. Bds. B. M., XII, 1888, p. 809, pl. xv, fig. 2.

Rhodospingus cruentus, SHARPE, Cat. Bds. B. M., XII, 1888, p. 808, pl. xv, fig. 1 (Balzar; Pallatanga; Babahoyo; Lechugal, Peru).

Esmeraldas, 2♂ ad., 3♀; Rio de Oro, 1♀; Manta, 2♂ ad., 1♂ im.; Bahia de Carques, 4♂ ad., 2♀; Guayaquil, 3♂ ad., 1♀; Chongoncito, 6♂ im., 2♀; Puna Is., 3♂ ad., 3♂ im., 3♀; Santa Rosa, 1♂ ad., 2♂ im.; Pulango, 1♂ ad.

RANGE.—Chiefly Arid Tropical Zone; northwestern Peru to northwestern Ecuador.

Our series shows that Sharpe's *mentalis* from Puna Island was based on individual, not racial variation. We have adult males with black chins from Bahia de Carques and Guayaquil, and one of our two Puna Island adult males is without black on the chin. This is a very distinct species with no near relatives.

(3952) *Paroaria gularis* (Linn.)

Tanagra gularis LINN., Syst. Nat., I, 1766, p. 316 (Guiana).

Paroaria gularis, GOODF., 1901, p. 473 (mouth of Rio Coca).

RANGE.—Guiana and Amazonia to Peru.

We have no Ecuadorean specimens.

(3962) *Arremon spectabilis* Scl.

Arremon spectabilis SCL., P. Z. S., 1854, p. 114 (Quijos, Ec.); JARD., 1856, p. 92 (Napo); SCL., 1858a, p. 72 (Napo); B. & T., 1883, p. 548 (Chimbo); ALLEN, 1889, p. 72 (Napo); S. & F., 1899a, p. 20 (Valle del Zamora; Valle del Santiago).

Zamora, 7♂, 2♀; below San José, 8♂, 5♀; Rio Suno, 4♂, 4♀.

RANGE.—Tropical Zone upward to lower Subtropical Zone; eastern Ecuador and northeastern Peru.

While obviously representing *A. aurantirostris*, this form seems to me to be sufficiently differentiated to be accorded specific rank. The rich flame-orange shoulder and the nearly obsolete vertical stripe are its most notable characters.

(3964) *Arremon aurantirostris occidentalis* Hellm.

Arremon aurantirostris occidentalis HELLM., P. Z. S., 1911, p. 1118 (Juntas, Rio Tamaná, Col., type; Condoto); L. & R., 1922, p. 80 (Nanegal).

Arremon erythrorhynchus, SCL., 1860c, p. 95 (Nanegal); 1860d, p. 274 (Babahoyo); 1860e, p. 293 (Esmeraldas); S. & F., 1899a, p. 21 (Rio Peripa).

Arremon spectabilis, HART., 1898, p. 483 (Cachaví); GOODR., 1901, p. 471 (Santo Domingo; San Nicolas); MEN., 1911, p. 81 (Santo Domingo; Pachijal).

Esmeraldas, 3 ♂, 1 ♀; Manaví, 6 ♂, 1 ♀; Cerro Manglar Alto, 1 ♂.

RANGE.—Tropical Zone: the species, northern Peru and western Ecuador to southern Mexico; the race, northwestern Ecuador and western Colombia.

Ecuadorean specimens are intermediate; they are nearer *occidentalis* in the coloration of the plumage, but they have the pale feet of *santarosæ*. On the whole, I consider that their affinities are with the former.

(3964a) *Arremon aurantirostris santarosæ* Chapm.

Arremon aurantirostris santarosæ CHAPM., Amer. Mus. Novit., No. 160, 1924, p. 6 (Santo Rosa, Ec.).

Arremon spectabilis, TACZ., 1877, p. 332 (Palma); HART., 1898, p. 483 (Chimbo). Bucay, junction of Chanchan and Chiguancay (Rhoads).

Duran, 1 ♀; Bucay, 7 ♂; Chimbo, 3 ♂, 1 ♀; Rio Jubones, 1 ♂; La Chonta, 4 ♂, 5 ♀; Santa Rosa, 6 ♂, 2 ♀; La Puente, 2 ♂; Cebollal, 2 ♂; Rio Pullango, 3 ♂.

Subspecific Characters.—Most nearly resembling *A. a. erythrorhynchus* Scl. of the Bogotá region, but with a broader pectoral band and somewhat browner upperparts; similar to its nearest geographic ally, *A. a. occidentalis* Hellm. of western Colombia, but bill less deep at the base, vertical stripe lighter gray, superciliary whiter, upperparts yellower green, sides and flanks whiter; feet flesh-colored instead of brownish; bill (in skins) paler. 5 ♂: topotypes, wing 74–76 mm., tail 62–66 mm., culmen 15–15.5 mm., depth of bill at base 7–8 mm.

RANGE.—Tropical Zone; southwestern Ecuador north to the Chimbo Valley.

The relationships of this form and its allies are discussed in the paper describing it.

(3969) *Arremon abeillei* Less.

Arremon abeillei LESS., Rev. Zoöl., 1844, p. 435 (Guayaquil).

Arremon abeillei, TACZ., 1877, p. 744 (Lechugal); B. & T., 1883, p. 548 (Guayaquil).

Manta, 1 ♂; Chongoncito, 2 ♂; Chongon Hills, 1 ♂; Guayaquil, 5 ♂, 6 ♀; Santa Rosa, 12 ♂, 3 ♀; Portovelo, 6 ♂, 3 ♀; Zaruma, 1 ♂, 1 ♀; Rio Pindo, 1 ♂; Lunamá, 4 ♀; Cebollal, 2 ♂; Alamor, 2 ♂; Guainche, 1 ♂; Pullango, 1 ♂. Peru: Paletillas, 7 ♂, 1 ♀; Milagros, 2 ♂; Palambla, 3 ♂, 2 ♀.

RANGE.—Tropical Zone; southwestern Ecuador and northwestern Peru.

This appears to be a representative of *A. nigriceps*, of the Marañon Valley, with which it shows the characters, unusual in this genus, of a black bill and no yellow on the bend of the wing. Possibly *A. polionotus* of Bolivia and Paraguay is the nearest trans-Andean relative of *abeillei* and *nigriceps*. The tendency to develop white wing-bars indicates the degree of departure of *abeillei* from typical *Arremon*.

(3971) *Lysurus castaneiceps* (Scl.)

Buarremon castaneiceps SCL., P. Z. S., 1859, p. 441 (Rio Napo, Ec.); 1860c, p. 86 (Nanegal).

Lysurus castaneiceps, MEN., 1911, p. 82 (Oyacachi).

Lower Sumaco, 2 ♀; Macas region, 1.

RANGE.—Subtropical Zone, eastern and western Ecuador and western Colombia.

Represented in western Panama and Costa Rica by *L. crassirostris*.

(3975) *Atlapetes leucopis* (Scl. & Salv.)

Buarremon leucopis SCL. & SALV., P. Z. S., 1878, p. 439 ("Yauayaca", Ec.); SCL., Cat. Bds. B. M., XI, 1886, p. 261, pl. xiv.

RANGE.—Recorded only from the type-locality, which is probably Yanayacu, though which one of the localities or rivers to which this name is applied I am unable to say.

(3976) *Atlapetes latinuchus latinuchus* (De Bus)

Buarremon latinuchus DU BUS, Bull. Acad. Brux., XXII, 1855, p. 154 ("Colombie et du Perou"); SCL., 1860b, p. 76 (Guápulo); 1860c, p. 85 (Calacali and above Puellaró).

Loja, 2 ♂, 3 ♀. Peru: Chaupe, 1 ♂.

RANGE.—Subtropical Zone; northern Peru to northern Colombia. (*A. l. elæoprurus*, north-central Colombian Andes).

(3977) *Atlapetes spodionotus spodionotus* (Scl. & Salv.)

Buarremon spodionotus SCL. & SALV., Ibis, 1879, p. 425 (Guápulo, Ec.); HART., 1898, p. 483 (Cayambe); S. & F., 1899a, p. 20 (Pun; La Concepcion; Huaca; Chaupi; Frutillas); GOODF., 1901, p. 471 (Papallacta; Corazon and Pichincha, 11,000–12,000 ft.); MEN., 1911, p. 83 (Pongo; Lloa; Afilana); L. & R., 1922, p. 80 (Chinguil).

Carenochrous spodionotus, B. & T., 1884, p. 292 (Cechce).

Hacienda Garzon (Rhoads).

Mojanda Mts. (10,500 ft.), 1 ♂; Pichincha, 5 ♂, 1 ♀; Yanacocha, 1 ♂, 3 ♀, 1 ?; Verdecocha, 1 ♀.

RANGE.—Humid Temperate Zone; northwestern Ecuador

Distinguished from *A. s. comptus* by the absence of a yellow spot above the lores, darker, more chestnut crown and paler underparts, and the nearly or wholly obsolete malar streak.

(3978) ***Atlapetes spodionotus comptus*** (*Scl. & Salv.*)

Buarremon comptus SCL. & SALV., Ibis, 1879, p. 426 (Maraviña, Ec.).

Above Zaruma, 3♂; Salvias, 1♂, 1♀; Chical, 10,100 ft., south of Huigra, 1♂; Taraguacocha, 5♂, 2♀; San Bartolo, 2♂, 3♀; Celica, 1♂, 2♀; Alamor, 2♂, 1♀; Guachanamá, 1♂, 1♀; Bestion, 1♂, 2♀. Peru: Palambla, 2♂, 2♀; El Tambo, 1♂, 2♀.

RANGE.—Chiefly Subtropical Zone of southwestern Ecuador.

Distinguished from *A. s. spodionotus* by a yellow spot at the base of the bill above the lores, usually well-developed malar stripe, and, as a rule, paler crown and richer underparts. The crown varies in color from hazel in fresh plumage to ochraceous-tawny or even (on the nape) ochraceous-buff in worn plumage. The Sical specimen from just south of the Chanchan Valley is intermediate. It has practically no malar marks, and the deeper crown of *S. spodionotus* and the richer underparts of *comptus*, while traces of yellow at the base of the maxilla induces me to place it with *comptus*. All the remaining birds above listed have the yellow supraloral mark. The upper Marañon representative of this species is doubtless *A. baroni*.

(3986) ***Atlapetes leucopterus*** (*Jard.*)

Arremon leucopterus JARD., Edinb. N. Phil. Journ. (2), iii, 1856, p. 92 (eastern Cordillera of Ecuador).

Buarremon leucopterus, SCL., 1859a, p. 138 (Pallatanga); GOODF., 1901, p. 470 (Pichincha); S. & F., 1899a, p. 20 (Niebli); L. & R., 1922, p. 80 (road to Nanegal).

Carenochrous leucopterus, B. & T., 1883, p. 548 (Cayandede); 1884, p. 292 (Cayandede; Cechce; Surupata; Bugnac).

Huigra; junction of Chanchan and Chiguancay; Chunchi; Cumbaya (Rhoads).

Pomasqui, 1; Tumbaco, 3♂; Pallatanga, 3♂, 1♀; above Bucay, 1♂, 1♀.

RANGE.—West Andes south to the Chimbo Valley, upward to the interandine plateau.

This bird was described from the eastern Cordillera whence we have no other record and no specimens from east of the Tumbaco Valley. Its vertical range is exceptionally wide, but I can find no differences between Bucay and Tumbaco specimens; nor do I discover traces of intergradation with *A. dresseri*, the apparent representative of *leucopterus* in southwestern Ecuador.

(3987) *Atlapetes dresseri* (Tacz.)

Carenochrous dresseri TACZ., P. Z. S., 1883, p. 70 (Nancho, Peru).

Lunamá, 2 ♂; Las Piñas, 1 ♂, 1 ♀; Guainche, 3 ♂, 1 ♀; Alamor, 7 ♂, 1 ♀. Peru: Milagros, 1 ♀; Palambla, 4 ♂, 6 ♀, 2 ?.

RANGE.—Subtropical Zone, northwestern Peru and southwestern Ecuador. Not before recorded from Ecuador.

The Ecuadorean specimens are fairly constant in color. All but two of the sixteen specimens have the crown to the posterior margin of the eyes and a broad postocular stripe to the nape black, but a male from Alamor has the black area mottled with white, the auriculars largely white, and a female from Guainche has some white on the forehead and about the eye. In the Palambla series, this type of variation is carried to the extreme. In only three of twelve specimens is the black area practically unmarked with white, while in the remaining twelve the amount of white varies from a band on the forehead to a patch occupying the entire head to the exclusion of rufous as well as black. In the two extreme examples of this kind there is also more or less white in the rump, etc., indicating that this variation is albinistic in character.

(3989) *Atlapetes simonsi* (Sharpe)

Buarremon simonsi SHARPE, Bull. B. O. C., XI, 1900, p. 2 (Loja, Ec.).

Loja, 1 ♀ (topotype).

RANGE.—Known only from the type-locality.

This appears to be the second record of this species.

(3989a) *Atlapetes celicæ* Chapm.

Atlapetes celicæ CHAPM., Amer. Mus. Novit., No. 160, 1925, p. 7 (Celica, Ec.).

Celica, 1 ♂ (type).

Specific Characters.—Agreeing in size and general coloration with *A. leucopterus* (Jard.) of northern Ecuador, but with no white speculum or evident white supraloral spots; nearly related to *A. seebohmi* (Tacz.) of Cajabamba, Peru, but smaller, white supraloral spots obsolete, mystacial stripes heavier, resembling *A. simonsi* (Sharpe) of the Loja region, but smaller, the forehead narrowly black, the white supraloral spots obsolete.

RANGE.—Known only from the type.

(3990) *Atlapetes schistaceus* (Boiss.)

Tanagra schistaceus BOISS., Rev. Zool., 1840, p. 69 (Bogotá).

Buarremon schistaceus, SCL., 1858e, p. 551 (Matos); S. & F., 1899a, p. 20 (Pun); GOODF., 1901, p. 471 (Papallacta); L. & R., 1922, p. 80 (road to Nanegal).

Carenochrous schistaceus, B. & T., 1885, p. 84 (San Rafael).

Road to Nanegal, 1; above Baeza, 2♂, 1♀; below Papallacta, 1♀; Oyacachi, 2♀; upper Sumaco, 2♂, 2♀; upper Rio Upano, 6.

RANGE.—Humid Temperate Zone, Ecuador and Colombia.

Our Ecuadorean specimens agree with a topotypical series. It is worthy of note that *A. mystacalis* of central Peru and *A. castaneifrons* of western Venezuela, although apparently representing *schistaceus*, are nearer to one another than to *schistaceus*. Both lack a white 'speculum,' both have the crown paler than in *schistaceus*. This is a common bird in western Colombia but is apparently rare in western Ecuador.

(3993a) ***Atlapetes pallidinuchus papallactæ* Hellm.**

Atlapetes pallidinucha papallactæ HELLM., Verh. der Orn. Gesell. Bayern, XI, Heft 4, 1913, p. 318 (Papallacta, e. Ec.).

Buarremon pallidinuchus, SCL., 1858c, p. 551 (Matos); GOODF., 1901, p. 470 (Papallacta); MEN., 1911, p. 83 (Oyacachi).

Carenochrous pallidinuchus, B. & T., 1885, p. 84 (San Rafael; Baños).

Buarremon pallidinucha papallactæ, L. & R., 1922, p. 80 (below Nono).

Forest above Chambo, 10,800–12,500 ft. (Rhoads).

Upper Mocha Cañon, east slope Chimborazo (12,500 ft.), 1♂; Galgalan (10,000 ft.), upper Rio Upano, 8; upper Sumaco, 2♂, 2♀; Papallacta, 2♂; Oyacachi, 3♂ 3♀.

RANGE.—Humid Temperate Zone: the species, Ecuador and Colombia; the race, eastern and western Ecuador and Central Andes of Colombia.

This bird appears to be more common in eastern than in western Ecuador. Aside from our specimens from the eastern slope of Chimborazo, the only record for western Ecuador appears to be Lönnberg and Rendahl's from "below Nono."

(3994) ***Atlapetes tricolor crassus* Bangs**

Atlapetes crassus BANGS, Proc. Biol. Soc. Wash., XXI, 1908, p. 161 (San Antonio Col.).

Mindo, 2♂, 1♂ juv.; La Chonta, 4♂.

RANGE.—Subtropical Zone: the species, central eastern Peru to central western Colombia; the race, western Ecuador and western Colombia. Not before recorded from Ecuador.

Comparison of twelve topotypical specimens of *A. tricolor* Tacz. with our examples of *crassus* from Ecuador and four from Colombia reveals such close relationships that in spite of the wide area separating

their known ranges I have no hesitation in ranking them as subspecies. The more northern bird is slightly larger, the back is blacker, the crown more olive, but these differences are nearly bridged by individual variation.

(4003) **Buarremon brunneinuchus** (*Lafr.*)

Embernagra brunnei-nucha LAFR., Rev. Zoöl., 1839, p. 97 (Mexico).

Buarremon brunneinuchus, SCL., 1858a, p. 72 (Napo); B. & T., 1885, p. 84 (Machay; Mapoto); S. & F., 1899a, p. 20 (La Concepcion; Niebli); GOODF., 1901, p. 470 (w. Corazon, 7,000 ft.); L. & R., 1922, p. 80 (road to Nanegal); CHAPM., Bull. A. M. N. H., XLVIII, 1923, p. 246 (Monog.).

Mindo, 2; Santa Rosa, 1 ♂; El Chiral, 2 ♂, 2 ♀; Zaruma, 1 ♂, 1 ♀; Salvias, 1 ♂; Zamora, 1 ♂, 1 ♀; Macas region, 3; lower Sumaco, 13 ♂, 8 ♀; San José de Sumaco, 1 ♂, 1 ♀; lower Rio Sardinas, 1 ♀; Baeza, 2 ♂, 3 ♀; below Oyacachi, 3 ♂, 1 ♀.

RANGE.—Subtropical Zone, southeastern Peru to Mexico; in Ecuador both East and West Andes, but wanting in the Chimbo Valley. (Fig. 14.)

I have discussed the variations of this species at some length in a paper on 'Mutation in the Genus *Buarremon*' (*loc. cit.*). Mexican birds average grayer below than those to the south, and it may become desirable to restrict the name *brunneinuchus* to them, but I have seen no variation in South American birds which was not swamped by individual variation. Should a Mexican form be recognized, the Ecuadorean form would doubtless stand as *B. b. frontalis* (Tsch.).

(4004) **Buarremon inornatus** *Scl. & Salv.*

Buarremon inornatus SCL. & SALV., Ibis, 1879, p. 427 (Pallatanga, Ec.); B. & T., 1884, p. 291 (Cayandeled); CHAPM., Bull. A. M. N. H., XLVIII, 1923, p. 253 (Monog.).

Buarremon brunneinuchus, SCL., 1859a, p. 138 (Pallatanga).

Junction of Chanchan and Chiguancay; Pagma Forest (Rhoads).

Rios Coco and Chimbo, 2 ♀; Pallatanga, 1 ♂, 1 ♀ juv.

RANGE.—Subtropical Zone, Chimbo and Chanchan Valleys. (Fig. 14.)

I have already discussed the relationships of this species and given my reasons for believing that it is a mutant of *B. brunneinuchus* (*loc. cit.*).

(4011) **Buarremon assimilis assimilis** (*Boiss.*)

Tanagra assimilis BOISS., Rev. Zoöl., 1840, p. 67 (Bogotá).

Buarremon assimilis, SCL., 1859b, p. 441 (Rio Napo); 1860b, p. 76 (Lloa); B. & T., 1884, p. 291 (Cechce); 1885, p. 84 (San Rafael; Baños); ALLEN, 1889, p. 71 (Nono); S. & F., 1899a, p. 19 (Pun; Niebli; forest of Corazon); GOODF., 1901, p. 470 (Pichin-

cha and Papallacta, at about 11,500 ft.); MEN., 1911, p. 82 (Pichincha; Alaspungo; Lloa); L. & R., 1922, p. 80 (Chinguil; below Nono).

Buarremon assimilis assimilis, CHAPM., Bull. A. M. N. H., XLVIII, 1923, p. 262 (Monog.).

Hacienda Garzon (Rhoads).

Near Nono, 1 (mutant with pectoral band); Yanacocha, 1♂; Verdecocha, 3♂, 1♀; Lloa, 1♂; n. w. Corazon, 1♀; Oyacachi, 2♂, 2♀; below Papallacta, 1♂, 1♀; above Baeza, 4♂, 1♀; upper Sumaco, 3♂, 4♀; upper Rio Upano, 2.

RANGE.—Humid Temperate Zone, northern Ecuador, south in the East Andes to the Macas region; north into Colombia.

The relationships and variations of this species have been discussed in an earlier paper.

(4011a) *Buarremon assimilis nigrifrons* Chapm.

Buarremon assimilis nigrifrons CHAPM., Amer. Mus. Novit., No. 67, 1923, p. 11 (Las Piñas, Ec.); Bull. A. M. N. H., XLVIII, 1923, p. 262 (Monog.).

La Puente, 1♂; Zaruma, 3♂, 1♀; Portovelo, 7♂, 3♀; Punta Santa Ana, 3♀; Las Piñas, 2♂; Salvias, 2♀; Guachanamá, 1♂; Guainche, 2♂; Alamor, 6♂, 3♀; Cebollal, 1♂; Loja, 2♂.

Subspecific Characters.—Similar to *B. a. assimilis* (Boiss.), but crown with gray areas smaller and black areas correspondingly larger, the gray median line not reaching to the forehead and sometimes nearly absent, the gray postocular usually less pronounced and sometimes almost wanting, when the black of the auriculars and nape is connected; wing and tail averaging shorter, the bill longer.

RANGE.—Subtropical Zone; northwestern Peru and southern Ecuador.

I have already discussed the relationships of this species (*loc. cit.*).

(4015) *Pogonospiza albiceps* (Tacz.)

Buarremon albiceps TACZ., Orn. Per., II, 1884, p. 533 (Paucal, Peru).

? *Buarremon pallidiceps* SHARPE, Bull. B. O. C., XI, 1900, p. 2 (Oña).

Casanga, 3♂, 1♀, 1?. Peru: Paletillas, Prov. Piura, 1?.

RANGE.—Arid Tropical Zone; northwestern Peru and southwestern Ecuador. Not before recorded from Ecuador.

These specimens agree with each other and with Taczanowski's description. *P. pallidiceps* Sharpe, described from Oña, is said to resemble *albiceps*, but to have the head and belly wholly white. The proximity of Oña to the Casanga Valley and the variations mentioned above in *Atlappetes dresseri* raise the question as to whether *pallidiceps* may not be an albinistic example of *albiceps*.

FAMILY CEREVIDÆ. HONEY-CREEPERS

(4019) *Cœreba mexicana intermedia* (Salvad. & Festa)

Certhiola intermedia SALVAD. & FESTA, Boll. Mus. Tor., XV, 1899, No. 357, p. 13 (Gualaquiza; Valle del Zamora, Ec.).

Certhiola luteola, SCL., 1858b, p. 452 (Zamora; Gualaquiza); 1860c, p. 85 (Nanegal); 1860e, p. 292 (Esmeraldas).

Certhiola mexicana, B. & T., 1883, p. 543 (Chimbo); GOODF., 1901, p. 319 (Baeza sp.; Intag; Milligalli).

Cœreba (= *Certhiola*) *mexicana*, HART., 1898, p. 481 (Chimbo; Paramba).

Cœreba mexicana, MEN., 1911, p. 84 (Gualea); L. & R., 1922, p. 80 (Gualea).

Certhiola columbiana, S. & F., 1899a, p. 13 (Playas; Foreste del Rio Peripa).

Bucay; junction of Chanchan and Chiguancay (Rhoads).

Esmeraldas, 4♂; Rio de Oro, 1♂, 1♀; Miñdo, 1♂, 2♀; Duran, 2♂, 1♀; Bucay, 2♂; Naranjo, 2♂; La Puente, 1♂; Zaruma, 1♀, 1♀; Salvias, 2♂; Portovelo, 3♂, 2♀; Las Piñas, 1♂; Alamor, 4♂, 3♀; Cebollal, 5♂, 1♀; Zamora, 2♂, 2♀; Guayaba, 1♂; Rio Suno, 6♂, 4♀; below San José, 3♂, 4♀; below Rio Sardinas, 1♂; below Oyacachi, 5♀. Peru: Paletillas, 1♂, 1♀—approaching *pacifica*.

RANGE.—Tropical Zone: the species, central western Peru and southeastern Ecuador north to Mexico; the race, eastern and western Ecuador and northwestern Peru.

Eastern Ecuadorean birds average slightly more olivaceous than those from western Ecuador, but the difference is scarcely appreciable, and birds from the two widely separated regions are essentially alike. The Marañon form is the quite distinct *C. magnirostris*; the Colombian, *C. mexicanus columbianus*. Hence it follows that the eastern and western Ecuadorean ranges of *intermedia* are widely separated.

In northwestern Peru, *intermedia* passes into *pacifica* Lowe, the range of which extends southward at least to La Libertad, whence we have a good series. This form resembles *columbiana* in color but is slightly smaller and with less yellow on the abdomen and flanks. I formerly referred northwestern Ecuadorean specimens to *columbiana*, but in the light of much additional material I should now place them with *intermedia*.

(4027a) *Diglossa sittoides intermedia* Cory

Diglossa sittoides intermedia CORY, Field Mus. Pub. No. 167, 1913, p. 292 (Cajamarca, Peru).

Diglossa sittoides (? *similis*), HART., 1898, p. 480 (Ibarra).

Diglossa sittoides, GOODF., 1901, p. 316 (Papallacta and Pichincha, 11,500 ft.); L. & R., 1922, p. 80 (Lloa; Calacali; Pomasqui; Tumbaco; Pichincha; road to Nanegal).

Diglossa sittoides similis, MEN., 1911, p. 84 (Tumbaco).

Pichincha, 1 ♂; Tumbaco, 1 ♂, 1 ♀; Celica, 1 ♀; Zamora, 1 ♂.

RANGE.—Chiefly Subtropical Zone: the species, Bolivia to Venezuela; the race, central Peru northward through Ecuador.

Ecuadorian specimens agree with the Bolivian form in color and with the Colombian form (*similis*¹) in size. As a compromise we may, therefore, refer them to the western central Peruvian race which they apparently resemble in both color and size.

In Mexico this species appears to be represented by the closely allied *D. baritula*, but it has not been recorded from Central America.

(4036) *Diglossa lafresnayei* (Boiss.)

Uncirostrum lafresnayei Boiss., Rev. Zoöl., 1840, p. 4 (Bogotá).

Diglossa lafresnayi, B. & T., 1885, p. 75 (San Rafael); Goodf., 1901, p. 317 (Nanegal, July; Quito; West Andes, up to 10,000 ft.); L. & R., 1922, p. 81 (Lloa; Pichincha; Nono; Tumbaco; Cumbaya).

Diglossa lafresnayei, MEN., 1911, p. 85 (Lloa; Pongo).

Verdecocha, 1 ♀; Pichincha, 1 ♂; Oyacachi, 2 ♂, 2 ♀; upper Sumaco, 3 ♂, 2 ♀. Peru: Chaupe (6,100 ft.), 2 ♂.

RANGE.—Humid Temperate Zone; northern Peru to western Venezuela.

A male from Verdecocha has the rump faintly margined with grayish blue, suggesting, therefore, the coloration of *D. humeralis* with which, in Colombia, we have found this species associated.

The two specimens from Chaupe, in the Subtropical Zone northeast of Huancabamba, add this species to the known avifauna of Peru, and thereby considerably extend its recorded range.

Diglossa humeralis (Fraser) is recorded by Sclater (Cat. Bds. B. M., XI, p. 8) from "Ecuador" but without definite data.

(4038) *Diglossa aterrima* Lafr.

Diglossa aterrima LAFR., Rev. Zoöl., 1846, p. 319 (Pasto, Col.); SCL., 1858c, p. 551. (Titiacun; Matos); 1859b, p. 440 (Rio Napo); 1860b, p. 76 (Panza); 1860c, p. 85 (Calacali); B. & T., 1884, p. 287 (Cechce); HART., 1898, p. 480 (Mount Cayambe, 9,000–10,000 ft.); S. & F., 1899a, p. 11 (El Troje; Lloa; Papallacta); Goodf., 1901, p. 317 (Quito); MEN., 1911, p. 95 (Guápulo; Lloa); L. & R., 1922, p. 81 (Lloa; Calacali; Tumbaco; Quito).

Above Chambo, 10,300 ft.; Hacienda Garzon; Cumbaya (Rhoads).

Yanacocha, 2 ♀; Guápulo, 1 ♂; Lloa, 2 ♂; Pichincha, 2 ♂, 1 ♀; Chimborazo, 1 ♂ ad., 2 ♂ im., 2 ♀; Urbina, 3 ♀; El Chiral, 1 ♀; Bestion, 1 ♀; El Paso, 4 ♂, 1 ♀;

¹ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 579.

San Bartolo, 2♂; Salvias, 1♂; Taraguacocha, 7♂; Loja (8,000 ft.), 1♂, 1♀; Oyacachi, 1♀. Peru: El Tambo, 7♂.

RANGE.—Chiefly Temperate Zone from Peru to Colombia.

Our Colombian material is not satisfactory but as far as it goes it reveals no racial difference between Colombian and Ecuadorean or Peruvian specimens.

(4040) *Diglossa albilatera albilatera* Lafr.

Diglossa albi-latera LAFR., Rev. Zool., 1843, (Colombia).

Diglossa albilateralis, SCL., 1859a, p. 138 (Pallatanga); 1860c, p. 85 (Puellaro and above); B. & T., 1884, p. 287 (Cayandeled; Chaguarpata); 1885, p. 75 (Baños); S. & F., 1899a, p. 12 (Niebli); GOODF., 1901, p. 316 (Papallacta; Pichincha; often with *D. sittoides*); L. & R., 1922, p. 81 (near Nanegal and Mindo).

Junction of Chanchan and Chiguançay; Huigra; Chunchi (Rhoads).

Above Baeza, 2♂; below Papallacta, 1♂.

RANGE.—Chiefly Subtropical Zone: the species, Peru to Venezuela; the race, eastern (and northwestern?) Ecuador, Colombia, and western Venezuela.

I have no specimens from northwestern Ecuador and provisionally place references from that region under this race. The fact that several males from Cerro Munchique, southwestern Colombia, approach *schistacea* suggests, however, that the northwestern Ecuadorean bird may be of that race.

(4040a) *Diglossa albilatera schistacea* Chapm.

Diglossa albilatera schistacea CHAPM., Amer. Mus. Novit., No. 160, 1924, p. 8 (Chaupe, n. Peru).

San Bartolo, 1♂, 3♀. Peru: Chaupe, 4♂, 3♀.

Subspecific Characters.—Resembling *D. a. albilatera* Lafr. of eastern Colombia, but upperparts and frontal region averaging paler, the underparts, especially posteriorly, always appreciably grayer. Very near *D. a. federalis* Hellm. of the Caracas, Venezuela region, but apparently slightly paler below. 4♂: wing 57–59 mm., tail 45 mm., culmen 10.5–12 mm.

RANGE.—Chiefly Subtropical Zone; northern Peru and southwestern Ecuador.

(4041) *Diglossa personata personata* (Fraser)

Agrilorhinus personatus FRASER, P. Z. S., 1840 (Bogotá).

Diglossa cyanea, JARD., 1849, p. 44 (cold forest e. side Pichincha).

Diglossa personata, SCL., 1858c, p. 551 (Pinipi; Matos; Titiacun); 1859a, p. 138 (Pallatanga); 1860b, p. 76 (Lloa); 1860c, p. 85 (Calacali); B. & T., 1884, p. 287 (Chaguarpata; Cayandeled; Tribulpata; Cechce); 1885, p. 75 (Baños); S. & F.,

1899a, p. 11 (Huaca; Pun; Frutillas); GOODF., 1901, p. 317 (Nanegal and Intag, July; West Andes up to 10,000 ft.); MEN., 1911, p. 86 (Lloa; Lanlin); L. & R., 1922, p. 81 (Lloa; Nono; Chinguil; Calacal;).

Above Chambo; Hacienda Garzon; Chunchi (Rhoads).

El Chiral, 1♂, 3♀; Zaruma, 1♂; Taraguacocha, 1♂, 1♀; Salvias, 2♂; Loja, 1♂; upper Sumaco, 3♂, 4♀; above Baeza, 1♂.

RANGE.—Subtropical and Humid Temperate Zones: the species, Bolivia to Venezuela; the race, eastern and western Ecuador, Colombia, and western Venezuela.

Specimens from southeastern Peru and Bolivia, as I have before said,¹ are duller, darker blue than true *personata*; the lower tail-coverts lack the white edgings present in Colombian specimens, and I may now add, the anterior part of the crown is usually appreciably lighter than the posterior part instead of being essentially concolor with it. The specimens from central Peru, whence I now have a large series, are intermediate in characters between those from Colombia and Bolivia. The lower tail-coverts are often edged with white, the general coloration is sometimes as in true *personata*, and the front of the crown is sometimes like one extreme, sometimes like the other. On the whole, however, I should place these birds with Bolivian, rather than Colombian ones, and they differ from both in being larger. Their identity is important, for the name *melanopsis* Tschudi was doubtless based on birds from central Peru. Eastern Ecuadorean birds are typical of true *personata*; those from southwestern Ecuador average slightly paler and this tendency is still more pronounced in four specimens from Chaupe and one from El Tambo, northern Peru, which, furthermore, are smaller and may require separation.

Measurements of Males

		Wing mm.	Tail mm.
<i>D. p. personata</i> , East Andes, Col.	4	74.5-77	57-60
<i>D. p. personata</i> , Central Andes, Col.	6	74-78	57-66
<i>D. p. melanopsis</i> , Rumicruz, Junin, Peru	4	78-86	60.5-66
<i>D. p. melanopsis</i> , Maraynioc, Junin, Peru	3	76-81	63
<i>D. p. melanopsis</i> , Urubamba Valley, Peru	2	77-82	64
<i>D. p. melanopsis</i> , Incachaca, Bol.	3	76-81	59-66.5
<i>D. p. personata</i> ?, Chaupe, n. Peru	1	73	55
<i>D. p. personata</i> ?, Tamborapa, Peru	1	72	52
<i>D. p. personata</i> ?, El Tambo, Peru	1	68	52

(4042) *Diglossa indigotica indigotica* ScL.

Diglossa indigotica ScL., Ann. & Mag. Nat. Hist. (2), XVII, 1856, p. 467 (Ecuador); P. Z. S., 1860, p. 85 (Nanegal); B. & T., 1885, p. 75 (Mapoto); GOODF., 1901, p. 318 (below Canzacota, 5,000 ft.); L. & R., 1922, p. 81 (road to Nanegal).

Macas region, 1♂; lower Sumaco, 2♂, 1♀; below Oyacachi, 1♀; "Ecuador," 1.

¹ Bull. U. S. Nat. Mus., No. 117, 1921, p. 115.

RANGE.—Subtropical Zone: the species, southeastern Peru to Ecuador; the race, eastern and western Ecuador (northern Peru ?); represented in western Colombia by *D. cryptorhis* Chapm.

The area of intergradation of this race with *D. i. inca* Chapm. of southeastern Peru is unknown to me. The western Colombian bird appears to be specifically distinct.

Diglossopsis caerulescens ScL. is recorded by Selater from "Ecuador" (Cat. Bds. B. M., XI, p. 12) but although the species is apparently common in Colombia and Peru, I know of no record of its occurrence in Ecuador.

(4047) ***Oreomanes fraseri* ScL.**

Oreomanes fraseri ScL., P. Z. S., 1860, p. 75 (Panza, Ec.); B. & T., 1885, p. 76 (Chimborazo); S. & F., p. 12 (Chaupi).

Mocha Cañon, (11,000 ft.), 1♂, 1♀; Cerro Huamani, 2♀.

RANGE.—Humid Temperate Zone, southeastern Peru to northern Ecuador.

A distinct, not common species. I found a pair near the end of the finger-like projection of the humid Temperate Zone which extends up the Mocha Cañon on the northeastern slopes of Chimborazo.

(4048) ***Conirostrum sitticolor sitticolor* Lafr.**

Conirostrum sitticolor LAFR., Rev. Zoöl., 1840, p. 102 (Bogotá); B. & T., 1885, p. 75 (San Rafael); S. & F., 1899a, p. 12 (Frutillas); GOODF., 1901, p. 318 (Papallacta; Pichincha to 11,000 ft.); MEN., 1911, p. 86 (Alaspungo; Oyacachi); L. & R., 1922, p. 81 (near Chinguil; Nono; w. side Corazon).

Near Quito, 2♂; Taraguacocha, 3♀; Salvias, 1♂, 1♀; upper Rio Upano, 3; upper Sumaco, 3♂, 1♀; Oyacachi, 3♂, 3♀; Papallacta, 1♂, 1♀. Peru: El Tambo, 2♂, 1♀.

RANGE.—Humid Temperate Zone: the species, Bolivia to Venezuela; the race, northern Peru, Ecuador, and Colombia.

Ecuadorean specimens agree with a Colombian series. Three from El Tambo, above Huancabamba, Peru, are paler below.

(4053) ***Conirostrum fraseri* ScL.**

Conirostrum fraseri ScL., P. Z. S., 1858, p. 452 (Cuenca, Ec.); 1860a, p. 65 (Chil-lanes); B. & T., 1884, p. 288 (Cechce); 1885, p. 76 (San Rafael); HART., 1898, p. 481 (Mount Cayambe; Ibarra); S. & F., 1899a, p. 12 (Huaca; El Troje; Chinguil; Tumbaco; Frutillas); GOODF., 1901, p. 318 (East and West Andes; Quito); MEN., 1911, p. 86 (Lloa; Tumbaco; Nono); L. & R., 1922, p. 82 (Tumbaco; Chinguil; Cumbaya; Nono).

Riobamba; Hacienda Garzon (Rhoads).

Pomasqui, 1 ♀; Yanacocha, 1 ♀; Lloa, 1 ♀; Tumbaco, 1 ♂; 1 ♀; Pichincha, 1 ♀; Cumbaya, 2 ♂, 1 ♀; Mocha, 1 ♂; Chimborazo, 1 ♀; Bestion, 1 ♂; El Paso, 1 ♀; Taraguacocha, 1 ♂; Salvias, 1 ♂; Loja, 1 ♂.

RANGE.—Upper Humid Temperate Zone; Ecuador and southern Colombia.

This is obviously a northern representative of *C. cinereum* with which it may intergrade through *C. c. littorale*. A series of the latter, however, is typical, while a Loja specimen is equally typical of *fraseri*.

(4057) **Conirostrum atrocyaneum atrocyaneum** Lafr.

Conirostrum atrocyaneum LAFR., Rev. Zoöl., 1848, p. 9 (Rio Napo).

Conirostrum albifrons, SCL., 1859a, p. 138 (Pallatanga).

Junction Chanchan and Chiguancay (Rhoads).

Above Baeza, 2 ♂; upper Sumaco, 2 ♂.

RANGE.—Subtropical and Temperate Zones: the species, Bolivia to Colombia; the race, eastern and western Ecuador and western Colombia.

Conirostrum atrocyaneum and *C. albifrons* are apparently mutually representative. The former is found in the West Andes of Colombia and southward through both eastern and western Ecuador to Bolivia; the latter is found in the East and Central Andes of Colombia. Females of the two species are essentially alike; males differ only in the color of the crown which is blue in *atrocyaneum* and white in *albifrons*. If a white-crowned specimen should occur in the range of *atrocyaneum* we should pronounce it an albinistic example of that species, but having an extended range of its own where *atrocyaneum* is unknown, we regard the white crown as a specific character. Geographic variation in this species is shown by the gradual disappearance of the blue wash in the plumage of the male as we go southward from true *atrocyaneum*, through *atrocyaneum sordidum* (central Peru to western Bolivia), to *atrocyaneum lugens* (eastern Bolivia) which has only a blue crown. The white crown, therefore, is apparently not a geographic variation but appears to be mutational in nature. Two males of *albifrons* from the northern end of the Central Andes have blue feathers in the white of the crown, demonstrating their relationship to *atrocyaneum*.

Having since received females of *atrocyaneum*, and being now in a position to determine the range of this species and of *albifrons*, it is evident that the female from Cerro Munchique, which I referred to *albifrons*, is in reality *atrocyaneum*. The specimen from Pallatanga recorded by Sclater as "*albifrons*" (P. Z. S., 1859, p. 138) is listed in the 'Catalogue of Birds in the British Museum (XI, p. 16)' under *atrocyaneum*. I note that Buckley specimens of *albifrons* are therein listed as from "Jima, Ecuador," but I question the accuracy of this record.

(4060) *Hemidacnis albiventris* (Scl.)

Pipraeidea albiventris SCL., Rev. Zoöl., 1852, p. 8 (Colombia).

Hemidacnis albiventris, SCL., Cat. Bds. B. M., XI, 1886, p. 17 (Sarayacu, Ec.).

RANGE.—Northeastern Peru, eastern Ecuador, and eastern Colombia.

We have no Ecuadorean specimens of this species.

(4062) *Dacnis cayana glaucogularis* Berl. & Stolz.

Dacnis cayana glaucogularis BERL. & STOLZ., P. Z. S., 1896, p. 336 (La Gloria, Peru).

Dacnis cayana, SCL., 1854, p. 110 (Quijos); 1858a, p. 61 (Napo); 1858b, p. 452 (Gualaquiza).

Zamora, 1 ♂, 1 ♀; below San José, 1 ♂.

RANGE.—Tropical Zone: the species, southern Brazil to Nicaragua; the race, Bolivia to Colombia.

These specimens agree with a topotypical series.

(4064) *Dacnis cayana cærebicolor* Scl.

Dacnis cærebicolor SCL., Contrib. Ornith., 1851, p. 106 ("Bogotá" = Magdalena Valley); HART., 1898, p. 481 (Paramba); GOODF., 1901, p. 318 (Santo Domingo); MEN., 1911, p. 87 (Santo Domingo).

Esmeraldas, 1 ♂, 3 ♀; Rio de Oro, 1 ♂; Naranjo, 1 ♂.

RANGE.—Tropical Zone, western Ecuador; western Colombia to Buenaventura; Magdalena Valley, intergrading with *napæa* in the Antioquia region, lower Magdalena, Atrato and upper San Juan Valleys.

Ecuadorean specimens average slightly paler than true *cærebicolor* but are obviously nearer to it than to *napæa*. Western Colombian specimens from as far north as San José, east of Buenaventura, are referable to *cærebicolor*, but specimens from Nóvita, Juntas de Tamaná, and Quibdo are nearer to *napæa*. Todd and Carriker¹ recognize two species, *cayana* and *cærebicolor*, in this group, but further consideration of the subject with much additional material merely confirms my already expressed belief² that all the recognized forms are races of *cayana*. It is true that I have no evidence connecting true *cayana* or any of the trans-Andean races with *cærebicolor* or *napæa* of Colombia; we have, however, a series demonstrating the intergradation of these races with each other and with *ultramarina* of Panama. The differences between the latter

¹ 'Birds of Santa Marta,' p. 460.

² Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 584.

and *callaina* of western Panama and westward are certainly of not more than subspecific value, while by parallelism *callaina* intergrades with *glaucogularis* of eastern Ecuador to Bolivia. The latter fact is abundantly demonstrated by specimens in our collection. Ridgway¹ has called attention to the resemblance between Chiriqui and Peruvian birds.

(4068) ***Dacnis angelica arcangelica* Bonap.**

Dacnis arcangelica BONAP., Bull. Soc. Linn. Norm., II, 1857, p. 31 (Bogotá).

Dacnis angelica, SCL., 1854, p. 110 (Quijos); 1858b, p. 452 (Gualaquiza); S. & F., 1899a, p. 12 (Valle del Zamora).

Zamora, 4♂, 5♀; Macas region, 2♂; Rio Suno, 2♂, 6♀; below San José, 2♂.

RANGE.—Tropical Zone: the species, Bolivia to Cayenne; the race, Bolivia to eastern Ecuador and eastern Colombia.

I have not sufficient lower Amazonian material to form an independent opinion of the status of the upper Amazonian race and therefore follow Hellmayr (Nov. Zoöl., XXVII, 1921, p. 246) in recognizing it.

(4069a) ***Dacnis egregia æquatorialis* Berl. & Tacz.**

Dacnis egregia æquatorialis BERL. & TACZ., P. Z. S., 1883, p. 543 (Chimbo); HART., 1898, p. 481 (Chimbo); MEN., 1911, p. 87 (Santo Domingo).

Dacnis egregia, SCL., 1860a, p. 65 (Pallatanga); 1860c, p. 85 (Nanegal); 1860d, p. 274 (Babahoyo); 1860e, p. 292 (Esmeraldas); S. & F., 1899a, p. 12 (Guala); GOODF., 1901, p. 318 (Nanegal; Guala; Intag).

Esmeraldas, 4♂, 4♀; Rio de Oro, 1♂; Naranjo, 1♂; Rios Coco and Chimbo, 1♀.

RANGE.—Tropical Zone: the species, Colombia west of the eastern Andes, and western Ecuador; the race, western Ecuador.

This is apparently the representative of *D. angelica* west of the Andes.

(4070) ***Dacnis flaviventer* d'Orb. & Lafr.**

Dacnis flaviventer D'ORB. & LAFR., Syn. Av. I, 1837, p. 21 ("Yuracares, Boliviana").

Dacnis flaviventris, S. & F., 1899a, p. 12 (Valle del Zamora).

Below San José, 1♂.

RANGE.—Tropical Zone; Bolivia to eastern Ecuador and eastern Colombia to lower Amazonia.

This specimen agrees with others from southeastern Peru. A male from the Rio Jamauchim, near its junction with the Tapajoz, has the breast, posterior to the black throat, almost immaculate.

¹ Bull. No. 50, U. S. N. M. II, p. 396.

(4071) ***Dacnis venusta fuliginata* Bangs**

Dacnis venusta fuliginata BANGS, Proc. Biol. Soc. Wash., XXI, p. 160 (Jimenez, w. Col.).

Dacnis fuliginata, BRAB. & CHUBB, Bds. So. Am., I, 1912, p. 396 (n. w. Ecuador).

RANGE.—Tropical Zone: the species, Ecuador to Costa Rica; the race, northwestern Ecuador and western Colombia.

We have no Ecuadorean specimens, and the only Ecuadorean record for this species known to me is in Brabourne and Chubb (*loc. cit.*). We have, however, specimens from Barbacoas in southwestern Colombia, supporting the Brabourne and Chubb record.

(4075) ***Dacnis berlepschi* Hart.**

Dacnis berlepschi HART., Bull. B. O. C., XI, 1900, p. 37 (Lita, n. w. Ec.); Nov. Zoöl., VIII, 1901, p. 371, pl. v, figs. 1 and 2 (Lita; Carondelet; San Javier).

Lita, 1 ♀ (co-type).

RANGE.—Known only from the localities above mentioned.

A very distinct species with no known near relatives.

(4074a) ***Ateleodacnis speciosa amazonum* Hellm.**

Ateleodacnis speciosa amazonum HELLM., Verh. der Orn. Gesell. Bayern, XIII, 1917, p. 106, (Poroto, Peru); Nov. Zoöl., XXVIII, 1921, p. 248 (e. Ecuador; crit.).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone: the species, eastern Colombia to Bolivia and southeastern Brazil; the race, eastern Colombia to northern Peru.

A California, Santa Cruz, Bolivia specimen is surprisingly like Wied's type of *speciosa*. One from Candamo, Peru, is slightly darker, thus suggesting the change in color which finds its fullest expression in *amazonum* of which we have also a specimen from the upper Ucayali.

(4077a) ***Cyanerpes cyaneus pacificus* Chapm.**

Cyanerpes cyaneus pacificus CHAPM., Bull. A. M. N. H., XXXIV, 1915, p. 655 (Barbacoas, Col.).

Esmeraldas, 2 ♂; coast of Manaví, 1 ♂.

RANGE.—Tropical Zone: the species, Brazil to Mexico; the race, northwestern Ecuador and western Colombia.

(4081) *Cyanerpes cærulea microrhyncha* (Berl.)

Cæreba cærulea microrhyncha BERL., Journ. für Orn., 1884, p. 287 (Bucaramanga, Col.).

Cæreba cærulea, S. & F., 1899a, p. 13 (Valle del Santiago); GOODF., 1901, p. 319 (Archidona).

'Napo,' 3 ♂, 2 ♀; Zamora, 1 ♀; Rio Suno, 3 ♀.

RANGE.—Tropical Zone: the species, southern Brazil and Bolivia to Trinidad and Guatemala; the race, eastern Colombia and eastern Ecuador to Bolivia.

These specimens are not separable from a small series from the vicinity of Honda, Col., which I assume typically represents *microrhyncha*.

(4081a) *Cyanerpes cærulea chocoana* Hellm.

Cyanerpes cærulea chocoana HELLM., Arch. für Naturg., 85, Heft 10, 1919 (1920), p. 14 (foot-note "San Joaquin, Chocó, Col.").

Cæreba cærulea, B. & T., 1883, p. 543 (Chimbo).

RANGE.—Tropical Zone: the species, Bolivia to Guiana and Guatemala; the race, western Ecuador and western Colombia.

We have no Ecuadorean specimens, but four males and two females from Barbacoas agree with Chocó specimens, and are smaller than *microrhyncha*, while the females are more intensely colored.

(4086) *Chlorophanes spiza exsul* Berl. & Tacz.

Chlorophanes spiza exsul BERL. & TACZ., P. Z. S., 1883, p. 543 (Chimbo, Ec.); HART., 1898, p. 481 (Chimbo); L. & R., 1922, p. 82, (below Nanegal).

Chlorophanes atricapilla, SCL., 1859a, p. 138 (Pallatanga); 1860e, p. 292 (Esmeraldas); GOODF., 1901, p. 319 (Santo Domingo; Guanacillo).

Esmeraldas, 1 ♂, 2 ♀; Rio de Oro, 2 ♂; Chimbo, 1 ♂; Rios Coco and Chimbo, 1 ♀; Naranjo, 1 ♂; Zaruma, 1 ♂; Las Piñas, 3 ♂, 4 ♀.

RANGE.—Tropical Zone: the species, Bolivia to the Guianas and Guatemala; the race, southwestern Colombia and western Ecuador.

Mr. Todd, in describing *C. s. subtropicalis*, calls attention to the interesting fact that while males from the Subtropical Zone of the Colombian Andes are indistinguishable from *cærulescens*, females are "flamulated [*i. e.* margined or tipped] with yellow below." Although sixteen of the nineteen specimens on which this race is based are in the American Museum, I find that three are females. These, however, are from the Central Andes (Jerico, Antioquia; above Palmira) and western slope of the East Andes (Fusugasugá—approached by a Trinidad specimen). As the type was from the West Andes, it appears that this form occupies all three ranges, though we do not as yet know whether

it is found on the eastern slope of the East Andes. This is a matter of importance when we attempt to determine whether this subtropical form is a zonal representative of *cærulescens* of the east, or *exsul* of the west. The fact that the male of *subtropicalis* resembles *cærulescens* rather than *exsul* would naturally lead us to assume that it is derived from the former rather than from the latter. It appears, however, in the light of additional material, that specimens from San José, western Colombia, below the type-locality of *subtropicalis*, are really nearer to *cærulescens* than to *exsul*. Possibly they should be referred to *arguta* Bangs and Barbour.¹

We have no females from the Tropical Zone of the Pacific, and Mr. Todd gives us no list of specimens examined which might throw some light on the range of the Tropical Zone forms in Colombia. A specimen from Honda, on the Magdalena, and one from Buenaventura on the Pacific coast, are the only females in the American Museum labeled as definitely coming from the Tropical Zone west of the Andes. The former is evidently referable to *cærulescens*; the latter is suggestively marked with yellow below. Subtropical races of tropical species are such valuable aids to the determination of the origin of the subtropical fauna that it is hoped more evidence in regard to the distribution of this species in Colombia may be forthcoming.

(4087) ***Chlorophanes spiza caerulescens* Cass.**

Chlorophanes caerulescens CASS., Proc. Acad. Nat. Sci. Phila., 1864, p. 268 (Yuracares, Bol.); S. & F., 1899a (Valle del Zamora).

Dacnis atricapilla, SCL., 1854, p. 110 (Quijos).

Chlorophanes atricapilla, SCL., 1858a, p. 61 (Napo); 1858b, p. 452 (Gualaquiza).

Chlorophanes spiza caerulescens, MEN., 1911, p. 88 (Gualaquiza).

RANGE.—Tropical Zone; Bolivia to eastern Colombia.

(4089) ***Iridophanes pulcherrima pulcherrima* (Scl.)**

Dacnis pulcherrima SCL., Rev. Zoöl., 1853, p. 480 (Bogotá).

Dacnis pulcherrima aureinucha, B. & T., 1885, p. 76 (Machay).

Below Oyacachi, 1 ♂.

RANGE.—Subtropical Zone: the species, Peru to Colombia; the race, southeastern Peru through eastern Ecuador to eastern Colombia.

Agrees with a Bogotá specimen and also a small series from central and southeastern Peru ("*stigmatura*" Berl. & Stolz., P. Z. S. 1896, p. 338. See also Chapm., Bull. U. S. N. M., No. 117, p. 116).

¹ Bull. M. C. Z., LXV, 1922, p. 225.

(4090) **Iridophanes pulcherrima aureinucha** (Ridgw.)

Dacnis pulcherrima aureinucha RIDGW., Proc. U. S. N. M., I, 1878, p. 484 (Ecuador).

Dacnis pulcherrima, GOODF., 1901, p. 318 (Santo Domingo; Guanacillo).

Iridophanes pulcherrima (aureinucha Ridgw., or) *gualæ* L. & R., 1922, p. 83 (Gualea, 4♂).

Gualea, 3♂.

RANGE.—Subtropical Zone; western Ecuador.

Although the type of *aureinucha* lacked definite locality, it is quite evident that Ridgway's description is based on a bird from western, rather than from eastern Ecuador. These two Gualea birds have the nape "deep golden orange," while in an eastern Ecuadorean and other specimens of true *pulcherrima* the nape is straw-yellow.

FAMILY TERSINIDÆ. SWALLOW-TANAGERS

(4093) **Tersina viridis occidentalis** (Scl.)

Procnias occidentalis SCL., P. Z. S., 1854, p. 249 (New Grenada); 1858a, p. 74 (Napo); 1854b, p. 452 (Zamora); 1860d, p. 275 (Babahoyo); 1860e, p. 292 (Esmeraldas).

Procnias cærulea occidentalis, B. & T., 1885, p. 76 (Yaguachi).

Procnias tersa, S. & F., 1899a, p. 14 (Valle del Zamora).

Procnias tersa subsp. *occidentalis*, GOODF., 1901, p. 458 (Santo Domingo; Gualea).

Procnias tersa typica, GOODF., 1901, p. 458 (foot of East Andes).

Procnias viridis occidentalis, MEN., 1911, p. 88 (Santo Domingo); L. & R., 1922, p. 82 (Gualea; Nanegal; near Mindo).

Bucay (Rhoads).

Bucay, 1♂; Punta Santa Ana, 1♂, 1♀; Cebollal, 2♂, 1♀; Alamor, 1♂; Zamora, 1♂, 1♀; Rio Suno, 3♂, 6♀; below San José, 1♂.

RANGE.—Tropical Zone: the species, southeastern Brazil, to Bolivia and Colombia; the race, the same, exclusive of southeastern Brazil

FAMILY TANAGRIDÆ. TANAGERS, EUPHONIAS

(4095) **Chlorophonia longipennis** (Du Bus)

Euphonia longipennis DU BUS, Bull. Acad. Brux., XXII, pt. i, 1855, p. 155 (Colombia).

Chlorophonia longipennis, SCL., Cat. Bds. B. M., XI, 1886, p. 54 (Sarayacu).

RANGE.—Eastern Ecuador and Colombia.

A member of the *frontalis* group, ranging through the Andes from Bolivia to eastern Venezuela, and also to Roraima. We have no Ecuadorean specimens.

(4100) ***Chlorophonia flavirostris* Scl.**

Chlorophonia flavirostris SCL., P. Z. S., 1861, p. 129 (Ecuador); Cat. Bds. B. M., XI, 1886, p. 56, pl. vi, fig. 2.

RANGE.—Known only from the type, presumably a female, from "Ecuador."

(4101) ***Chlorophonia pyrrhophrys* (Scl.)**

Euphonia pyrrhophrys SCL., Contrib. Ornith., 1851, p. 89 (Colombia); (= *Tanagra pretrei* Lafr., preoccupied, see Bangs and Penard, Bull. M. C. Z., LXIII, 1919, p. 34)

Baeza, 1 ♂.

RANGE.—Subtropical Zone; eastern Ecuador to Venezuela.

This bird agrees with Colombian specimens. New to Ecuador.

(4102) ***Tanagra insignis* (Scl. & Salv.)**

Euphonia insignis SCL. & SALV., P. Z. S., 1877, p. 521, pl. li, fig. 1 ("Jina" = Jima, Ecuador).

RANGE.—Known only from the type-locality.

We have not found this species. It appears to resemble *T. aureata pelzelni*, but to have a yellow instead of a black forehead.

(4104) ***Tanagra aureata pelzelni* (Scl.)**

Euphonia nigricollis pelzelni SCL., (Berl. MS.), Cat. Bds. B. M., XI, 1886, p. 61 (w. Ecuador).

Euphonia nigricollis, JARD., 1855, p. 118 (Valley of Chillo, 1,500 ft., below level of Quito); SCL., 1858c, p. 551 (Matos); 1860a, p. 65 (Pallatanga); 1860c, p. 87 (Perucho; Puellaro); B. & T., 1884, p. 288 (Cayandede); 1899a, p. 14 (Tumbaco; Valle de Chillo); GOODF., 1901, p. 459 (Guápulo and w. Pichincha, 8,100 ft.); MEN., 1911, p. 89 (Tumbaco).

Tanagra aureata pelzelni, Bangs & Penard, Bull. M. C. Z., LXIII, 1919, p. 35 (w. Ecuador).

Euphonia cyanocephala pelzelni, L. & R., 1922, p. 82 (Tumbaco; Cumbaya); HELLM., Nov. Zoöl., XXX, 1923, p. 232 (Govindá; Intac; Pichincha; Cayandede, etc.).

Cumbaya (Rhoads).

Yaguarcocha, 1 ♂ im.; 'Quito,' 2 ♂; Tumbaco, 3 ♂, 3 ♀; Cumbaya, 2 ♂, 2 ♀; Mocha, 2 ♀.

RANGE.—Tropical to Temperate Zone; the species, Paraguay to Colombia and Guiana; the race, chiefly Temperate Zone of northern Ecuador and southern Colombia, ranging downward to the Subtropical Zone.

The distribution of this species is peculiar. *T. a. aureata* is found from Rio Janeiro to Paraguay, northern Argentina and Bolivia, in the Tropical Zone. From Argentina we have a male from Tafi Viejo; one from Todos Santos (1,300 ft.), and also one from Tujma (8,000 ft.), Bolivia, which are identical. From Peru we have but one specimen, a male from Chaupe (6,100 ft.) in the Subtropical Zone northeast of Huancabamba, which agrees closely with those just mentioned.

All our specimens of *T. a. pelzelni* (Scl.) are from the Temperate Zone of the northern half of Ecuador, but it is recorded from localities in the Subtropical Zone of both western and eastern Ecuador—*i. e.* Pallatanga and Machay. There is some variation in the depth of color of the yellow areas and the most richly colored bird (from Cumbaya) is barely separable from a male from La Sierra (6,800 ft.), near the head of the Magdalena Valley.

Tanagra aureata intermedia Chubb appears to occupy the Subtropical Zone of all three ranges of the Andes in Colombia, and to extend eastward through the mountains of Venezuela to Bermudez and Guiana. Our Colombian specimens differ from our Bolivian and Peruvian examples of *aureata* only in being slightly smaller.

(4111a) *Tanagra xanthogastra quitensis* Nels.

Tanagra xanthogaster quitensis NELS., Smith. Misc. Coll., Vol. LX, 1912, p. 16 (Quito, Ec.); L. & R., 1922, p. 82 (Gualea; Nanegal).

Euphonia xanthogastra, SCL., 1854, p. 115 (Quijos); 1858a, p. 74 (Napo); 1858b, p. 452 (Gualaquiza); 1858a, p. 140 (Pallatanga); 1860c, p. 87 (Nanegal); 1860d, p. 275 (Babahoyo); B. & T., 1883, p. 544 (Chimbo); 1884, p. 288 (Cayandeled; Pedregal); 1885, p. 77 (Machay); ALLEN, 1889, p. 71 (Napo; Gualea); HART., 1898, p. 881 (Cachavi; Chimbo); S. & F., 1899a, p. 14 (Valle del Zamora); GOODF., 1901, p. 459 (Santo Domingo; Gualea); MEN., 1911, p. 90 (Gualea; Santo Domingo).

Rio de Oro, 1 ♀; 'Gualea,' 4 ♂, 4 ♀; Bucay, 1 ♂, 2 ♀; Naranjo, 1 ♂, 1 ♀; Chimbo, 2 ♂; Coco and Chimbo, 1 ♂; La Chonta, 5 ♂, 6 ♀; El Chiral, 4 ♂, 4 ♀; Zaruma, 4 ♂, 6 ♀; Punta Santa Ana, 1 ♂, 1 ♀; Salvias, 1 ♀; Las Piñas, 1 ♂, 4 ♀; San Bartolo, 1 ♂; Alamor, 8 ♂, 4 ♀; Cebollal, 1 ♂; Zamora, 3 ♂, 2 ♀; Sabanilla, 1 ♂; Macas, 1 ♂; Rio Suno, 7 ♂, 2 ♀; below San José, 3 ♂, 1 ♀; lower Sumaco, 1 ♂, 3 ♀; below Oyacachi, 1 ♀. Peru: Pomará, Marañon, 2 ♂, 4 ♀; Chaupe (6,100 ft.), 1 ♂, 1 ♀; Chelpes (7,300 ft.), 2 ♂; Utcuyacu (4,800 ft.), 1 ♂, 2 ♀.

RANGE—The species, eastern Brazil and northeastern Venezuela to Bolivia and western Ecuador; the race, Tropical and Subtropical Zones, Ecuador, and northern Peru.

I am wholly unable to find any constant racial difference in the specimens listed above.¹ Variation in size is dependent upon altitude, birds from the lower levels having an average wing measurement of 61 mm., while in those from the Subtropical Zone in the same latitude it is about 66 mm. There is also much variation in the size of the bill, but this appears to be largely individual, though small-billed specimens occur more frequently in eastern than in western Ecuador. In this character they average nearer *brevirostris*; in the color of the crown they resemble *quitensis*.

Specimens from the Bogotá district, which we may assume typically represent *brevirostris*, have a smaller bill, slightly browner crown, and average bluer above. The difference at best is slight, and specimens from Quetame and Buena Vista, east of Bogotá, can be matched from both eastern and western Ecuador. It will be observed, therefore, that in the light of much additional, authentically labeled material, I reverse my opinion concerning the distinctness of the Ecuadorean form.²

Specimens from southwestern Colombia so closely approach *quitensis* that it is not probable that the paler *chocoensis* (Hellm.) of western Colombia occurs in Ecuador.

(4118) ***Tanagra saturata* (Cab.)**

Phonasca saturata CAB., Jour. für Orn., 1860, p. 336 ("New Granada").

Euphonia saturata, TACZ., 1877, p. 744 (Tumbez); B. & T., 1884, p. 288 (Surupata); 1885, p. 76 (Yaguachi); S. & F., 1899a, p. 14 (Vinces; Balzar); ? GOODF., 1901, p. 459 (Archidona); L. & R., 1922, p. 83 (road to Nanegal).

Esmeraldas, 1♂; Manaví, 1♂, 1♀; Chongoncito, 1♀; Santa Rosa, 7♂, 4♀; Rio Pindo, 4♂, 1♀; Cebollal, 2♂; Pullango, 1♂. Peru: Milagros, 1♀.

RANGE.—Arid Tropical Zone; northwestern Peru, western Ecuador and western Colombia.

These specimens agree with a series from Caldas, Col. A male from Rio Pindo has a white spot on the inner web of the outer tail-feather, a character shown by two of our Colombian specimens. Goodfellow records this species from Archidona. We have a specimen labeled "Napo" in which the crown is a brighter yellow than in any of our large series from the Pacific coast region. Possibly it represents an undescribed form in which an expected approach toward *finschi* is exhibited.

¹ Some females from Peru, however, have the breast more buffy than those from Ecuador.

² See Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 589.

(4119a) **Tanagra olivacea humilis** (Cab.)

Phonasca humilis CAB., Jour. für Orn., 1860, p. 334 (Costa Rica)

Euphonia minuta, S. & F., 1899a, p. 14 (Gualea).

RANGE.—Tropical Zone: the species, Guiana to Peru and Guatemala; the race, western Ecuador to Guatemala.

We have no Ecuadorean specimens, but an example from Barbacoas in southwestern Colombia is referable to this race.

(4121) **Tanagra fulvicrissa purpurascens** (Hart.)

Euphonia fulvicrissa purpurascens HART., Nov. Zoöl., VIII, 1901, p. 370 (Pan-bilar, n. w. Ec.).

RANGE.—Tropical Zone: the species, Ecuador to western Panama; the race, northwestern Ecuador and southwestern Colombia.

We have no Ecuadorean examples of this species.

(4128) **Tanagra hypoxantha** (Berl. & Tacz.)

Euphonia hypoxantha BERL. & TACZ., (Stolz. MS.), P. Z. S., 1883, p. 544 (Chimbo, Ec.); 1885, p. 77 (Yaguachi); HART., 1898, p. 481 (Chimbo); S. & F., 1899a, p. 15 (Rio Peripa).

Euphonia crassirostris, SCL., 1860d, p. 275 (Babahoyo); TACZ., 1877, p. 277 (Lechugal).

Bucay (Rhoads).

Esmeraldas, 8♂, 1♀; Chone, 5♂, 6♀; Chongoncito, 3♂, 4♀; Rio de Oro, 1♂; Bucay, 2♂, 1♀; Rio Jubones, 2♂; Santa Rosa, 5♂, 6♀; Portovelo, 8♂, 12♀; Punta Santa Ana, 1♂, 2♀; Casanga, 2♂, 1♀; Rio Pindo, 1♂; Salvias, 2♂; Lunamá, 2♂, 1♀; Guainche, 1♀; Las Piñas, 2♂, 1♀; Cebollal, 1♂, 2♀; Alamor, 3♂, 2♀. Peru: Paletillas, 1♂, 1♀; Palambla, 5♂, 3♀.

RANGE.—Tropical Zone; chiefly arid; western Ecuador and northwestern Peru.

Apparently represents *T. crassirostris*.

(4129) **Tanagra melanura** (Scl.)

Euphonia melanura SCL., Contrib. Ornith., 1851, p. 86 (Barra de Rio Negro); S. & F., 1899a, p. 15 (Valle del Zamora).

'Napo,' 1♂; Zamora, 2♀.

RANGE.—Tropical Zone; upper Amazonia.

Resembling *laniirostris*, but with no white in the tail.

(4130) ***Tanagra rufiventris Vieill.***

Tanagra rufiventris VIEILL., Nouv. Dict. d'Hist. Nat., XXXII, 1819, p. 426 ("Brésil").

Euphonia rufiventris, SCL., 1858a, p. 74 (Napo); GOODF., 1901, p. 459 (mouth of Coca). (Buckley, "Intag".)

Rio Suno, 4 ♂, 4 ♀.

RANGE.—Tropical Zone; Rio Negro to eastern Ecuador and Peru.

(4134) ***Tanagra mesochrysa mesochrysa (Salvad.)***

Euphonia mesochrysa SALVAD., Atti R. Acad. Sci. Tor., VIII, 1873, p. 193 (Bogotá).

Below Oyacachi, 2 ♂.

RANGE.—The species, southeastern Peru to Colombia; the race, Subtropical Zone, eastern Ecuador and eastern Colombia.

These specimens agree with one from the 'Bogotá' region.

(4135) ***Tanagra chrysopasta chrysopasta Scl. & Salv.***

Tanagra chrysopasta SCL. & SALV., P. Z. S., 1869, p. 438, pl. xxx, figs. 1, 2 (Lower Ucayali).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone: Bolivia to Colombia and Guiana.

New to Ecuador. I have not seen the Surinam race *T. c. nitida* Penard, and do not know where the ranges of the two forms meet.

(4140) ***Tanagrella velia iridina (Hartl.)***

Tanagra iridina HARTL., Rev. Zoöl., 1841, p. 305 ("Moyobamba, Peru").

Tanagrella iridina, MEN., 1911, p. 90 (c. Ecuador).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone: the species, Guiana and lower Amazon to upper Amazonia; the race, upper Amazonia.

(4142) ***Tanagrella calophrys (Cab.)***

Hypothlypis calophrys CAB., in Schomb. Reis. Guiana, III, 1848, p. 453 ("Brasilien").

Tanagrella calophrys GOODF., 1901, p. 459 (mouth of Coca); MEN., 1911, p. 91 (upper Napo).

'Napo,' 3 ♂.

RANGE.—Subtropical Zone; upper Amazonia.

(4144) *Chlorochrysa calliparæa bourcieri* (Bonap.)

Calliste bourcieri BONAP., Compt. Rend., XXXII, 1851, p. 76 (Baños, Tun-guragua, Ec.).

Chlorochrysa calliparæa, SCL., 1858a, p. 74 (Napo).

Chlorochrysa bourcieri, B. & T., 1885, p. 77 (Machay; Mapoto); GOODF., 1901, p. 459 (Baeza).

Zamora, 1 ♂; Sabanilla, 1 ♀; Macas region, 1 ♂; below San José, 2 ♂; lower Sumaco, 1 ♂, 2 ♀; Baeza, 2 ♂, 1 ♀.

RANGE.—Subtropical Zone: the species, central Peru through eastern Ecuador to eastern Colombia; the race, northern Peru to eastern Colombia.

I have not seen true *calliparæa*. A specimen from Chaupe, northern Peru, resembles Ecuadorean examples.

(4145) *Chlorochrysa phœnicotis* (Bonap.)

Calliste phœnicotis BONAP., Compt. Rend., XXXII, 1851, p. 76 (Ecuador).

Chlorochrysa phœnicotis, SCL., 1860c, p. 87 (Nanegal); S. & F., 1899a, p. 15 (Gualea); GOODF., 1901, p. 460 (Nanegal; confined to west side of Andes); MEN., 1911, p. 91 (Gualea; Pacto); L. & R., 1922, p. 83 (Nanegal).

Chlorochrysa nitidissima, ALLEN, 1889, p. 71; specimen examined ("Napo", native skin, locality incorrect).

Gualea, 2 ♂, 1 ♀.

RANGE.—Subtropical Zone; western Ecuador and western Colombia.

(4149) *Pipræidea melanonota venezuelensis* Scl.

Pipræidea venezuelensis SCL., P. Z. S., 1856, p. 265 (Caracas, Ven.); 1860a, p. 65 (Pallatanga).

Pipræidea melanonota venezuelensis, B. & T., 1884, p. 289 (Cayandede); HART., 1898, p. 481 (Ibarra); MEN., 1911, p. 92 (Gualea).

Pipræidea melanota venezuelensis, GOODF., 1901, p. 460 (Pichincha, 11,000 ft.; Papallacta).

Zamora, 1 ♀.

RANGE.—The species, southeastern Brazil and northern Argentina to Venezuela; the race, Argentina to Venezuela.

We have only a single specimen of this bird from Ecuador, but the records for this country and for Colombia indicate that it inhabits chiefly the Subtropical Zone.

(4150) *Procnopis*¹ *vassori* (Boiss.)

Tanagra vassorii BOISS., Rev. Zoöl., 1840, p. 40 (Bogotá).

Diva vassori, SCL., 1860c, p. 87 (above Puellaro); B. & T., 1885, p. 77 (La Union; San Rafael).

¹ This genus is probably not separable from *Tangara* (cf. W. DeW. Miller, 'Auk,' 1919, p. 576).

Procnopis vassori, GOODF., 1901, p. 460 (Canzacota; Guallea; Mindo; Baeza); MEN., 1911, p. 92 (Alaspungo; Lanlin; Chorillos); L. & R., 1922, p. 83 (below Mindo and Nono).

Mindo, 1 ♂; Pallatanga, 1 ♀; San Bartolo, 7 ♂, 3 ♀; Loja, 1 ♂, 1 ♀; upper Sumaco, 5 ♂, 6 ♀; above Baeza, 3 ♂; Papallacta, 1 ♂, 1 ♀. Peru: El Tambo, 6 ♂, 1 ♀.

RANGE.—Temperate and upper Subtropical Zones; Peru to Venezuela.

A widely distributed common species. The specimens from northern Peru are typical and show no approach toward *P. branicki*, which appears to be intermediate between *vassori* and *atrocaerulea* of central Peru to Bolivia.

(4155) *Tangara chilensis* (Vig.)

Aglaia chilensis VIG., P. Z. S., 1832, p. 3 (Chili = Bolivia).

Calliste yeni, SCL., 1858b, p. 453 (Gualaquiza); B. & T., 1885, p. 77 (Machay); ALLEN, 1889, p. 71 (Napo); GOODF., 1901, p. 460 (Rio Coca; Iquitos, Peru); S. & F., 1899a, p. 15 (Gualaquiza; Valle del Zamora).

Calospiza chilensis, MEN., 1911, p. 92 (Macas; Napo; Gualaquiza).

Guayaba, Rio Zamora, 2 ♂, 1 ♀; Zamora, 7 ♂, 1 ♀; below San José, 1 ♀; Rio Suno, 1 ♀.

RANGE.—Tropical Zone; Bolivia to southeastern Colombia.

In addition to these specimens from Ecuador, we have also some forty specimens from Peru. Two immature birds from Zamora show an appreciable trace of yellow in the rump. In both these specimens, yellow and red feathers in nearly equal proportions are scattered throughout this area. These are the only immature birds in the series, and I am unable to say whether the yellow markings of the rump are due to age or to the influence of *T. paradisea*.

(4163) *Tangara schrankii* (Spix)

Tanagra schrankii SPIX, AV. BRAS., II, 1825, p. 38, pl. li, fig. 1 (n. Brazil).

Calliste schranki, SCL., 1854, p. 115 (Quijos); 1858a, p. 74 (Napo); 1858b, p. 453 (Gualaquiza; Zamora); ALLEN, 1889, p. 71 (Napo); S. & F., 1899a, p. 15 (Valle del Zamora).

Calospiza schranki, MEN., 1911, p. 93 (Gualaquiza).

Zamora, 5 ♂, 4 ♀; Macas region, 2; below San José, 2 ♂, 3 ♀; Rio Suno, 4 ♂, 3 ♀.

RANGE.—Tropical Zone up to Subtropical Zone, Bolivia to southeastern Colombia.

An excellent series from throughout the range of this species shows no appreciable geographic variation. Apparently represented west of the Andes by *T. florida* and races.

(4164) **Tangara johannæ** (Dalmas)

Calliste johannæ DALMAS, Bull. B. O. C., XI, 1900, p. 35 (Buenaventura, Col.); SCL., Ibis, 1901, p. 596, pl. xii, fig. 2 (Paramba). The Peruvian localities given by Selater are erroneous. (See Hellm., Ibis, 1910, p. 328.)

RANGE.—Tropical Zone; northwestern Ecuador and western Colombia.

We have only Colombian specimens of this distinct species.

(4165a) **Tangara punctata zamoræ** Chapm.

Tangara punctata zamoræ CHAPM., Amer. Mus. Novit., No. 160, 1925, p. 9 (Zamora, Ec.).

Calliste punctata, B. & T., 1885, p. 77 (Machay; Mapoto).

Calospiza punctata punctulata, BERL., Verh. V Int. Cong. Berlin, 1911, p. 1029 (e. Ecuadorean references).

Zamora, 6♂, 1♀; below San José, 2♂.

Subspecific Characters.—Similar to *T. p. punctata* (Linn.) of the Guianas, but larger and with the primary coverts and outer primaries margined with green instead of with blue.

RANGE.—Tropical up to Subtropical Zone: the species, Guiana to Bolivia; the race, eastern Ecuador.

The Venezuelan and Colombian representative of this species is apparently *T. guttata*.

(4169) **Tangara xanthogastra** (Scl.)

Calliste xanthogastra SCL., Contrib. Ornith., 1851, p. 23 (Rio Negro, Brazil); 1854, p. 115 (Quijos); ALLEN, 1889, p. 71 (Napo); S. & F., 1899a, p. 15 (Valle del Zamora; Valle del Santiago; Gualaquiza).

Zamora, 1♀; Macas region, 1; Rio Suno, 1♂, 3♀; below San José, 3♂.

RANGE.—Tropical Zone; Guiana to Colombia and Bolivia.

This species appears to present no geographic variation.

(4171) **Tangara rufigula** (Bonap.)

Tanagrella rufigula BONAP., Compt. Rend., XXXII, 1851, p. 77 (Ecuador).

Calliste rufigularis, SCL., 1859b, p. 440 (Rio Napo); SCL., 1860c, p. 86 (Nanegal); ALLEN, 1889, p. 71 (Nanegal); HART., 1898, p. 481 (Paramba); GOODF., 1901, p. 460 (Mindo; Intag and other places between 5,000–7,000 ft.).

Calospiza rufigularis, MEN., 1911, p. 94 (Gualea).

Calospiza rufigula, L. & R., 1922, p. 83 (Gualea).

Mindo, 1 ♂, 1 ♀; La Chonta, 1 ♀.

RANGE.—Chiefly Subtropical Zone, western Ecuador and western Colombia (and eastern Ecuador?).

Selater records native-made skins of this species from Napo and Buckley skins from Sarayacu, but we have not found it on the Amazonian side in either Colombia or Ecuador.

(4172a) **Tangara aurulenta goodsoni** Hart.

Tangara aurulenta goodsoni HART., Bull. B. O. C., XXXIII, 1913, p. 78 (Gualea, Ec.).

Calliste aurulenta, SCL., 1859a, p. 140 (Pallatanga); 1860c, p. 86 (Nanegal); B. & T., 1883, p. 544 (Cayandeled); 1884, p. 288 (Cayandeled); S. & F., 1899a, p. 15 (Intac; Gualea); GOODF., 1901, p. 461 (Santo Domingo; Intag).

Calospiza aurulenta, MEN., 1911, p. 94 (Gualea; San Nicolas).

Calospiza aurulenta goodsoni, L. & R., 1922, p. 83 (Nanegal).

Junction Chanchan and Chiguaneay (Rhoads).

Gualea, 3 ♂; Rios Coco and Chimbo, 1 ♂, 1 ♀; Pallatanga, 2 ♂; El Chiral, 2 ♀; Zaruma, 6 ♂, 1 ♀; Portovelo, 1 ♂, 1 ♀; Punta Santa Ana, 4 ♂, 1 ♀; Salvias, 3 ♂; San Bartolo, 1 ♂; Alamor, 11 ♂, 7 ♀.

RANGE.—Subtropical Zone: *T. a. aurulenta*, western slope of East Andes and eastern slope of Central Andes of Colombia; *T. a. occidentalis*, western slope of Central Andes and West Andes of Colombia; *T. a. goodsoni*, West Andes of Ecuador.

Specimens from southwestern Ecuador (Alamor) are very near topotypes, but are, perhaps, slightly less orange above. This form is intermediate between true *aurulenta* and *occidentalis* of western Colombia, nearer the latter in the color of the upperparts and the former in the color of the underparts.

(4177) **Tangara pulchra æquatorialis** (Berl. & Tacz.).

Calliste pulchra æquatorialis BERL. & TACZ., P. Z. S., 1885, p. 77 (Machay; Mapoto, Ec.).

Calliste pulchra, SCL., 1858, p. 74 (Napo).

Calospiza pulchra, MEN., 1911, p. 94 (Gualaquiza).

Zamora, 2 ♂, 2 ♀; Sabanilla, 1 ♂; below San José, 2 ♂, 2 ♀; lower Sumaco, 1 ♂, 1 ♀; Archidona, 1 ♂; Baeza, 3 ♀; below Oyacachi, 4 ♀; Rio Sardinas, 1 ♂.

RANGE.—Subtropical Zone: the species, East Andes, Bolivia to Venezuela; the race, eastern Ecuador.

While it is obvious that all the forms of the *aurulenta-arthus-pulchra* group are mutually representative, I have not material to demonstrate their intergradation. To treat them as subspecifically related would

require nomenclatural expression, but this seems undesirable until there is more than theoretical ground for this course. There is a gradual increase in richness of coloration from the north southward in Ecuadorean specimens, but having no topotypical material of true *pulchra* I cannot say how closely this form is approached by southern Ecuadorean birds.

(4178) **Tangara icterocephala** (Bonap.)

Calliste icterocephala BONAP., Compt. Rend., XXXII, p. 76 (Ecuador); SCL., 1860c, p. 87 (Nanegal); GOODF., 1901, p. 461 (Santo Domingo; Gualea; Intag). Bucay (Rhoads).

'Quito,' 1; Zaruma, 1 ♀; Punta Santa Ana, 2 ♂; Las Piñas, 1 ♀; Alamor, 1 ♂.

RANGE.—Subtropical Zone; western Ecuador to Costa Rica.

The 'Quito' specimen, a native-made skin, agrees fairly well with a series from western Panama and Costa Rica, but the remaining specimens from Ecuador in our collection have the back much greener, the yellow areas paler. Evidently, two forms are here represented, but, assuming that the type of *icterocephala* came from the 'Quito' region, our single specimen, said to have come from that part of Ecuador, is not an adequate basis from which to draw conclusions.

(4179) **Tangara vitriolina** (Cab.)

Callispiza vitriolina CAB., Mus. Heine, I, 1850, p. 28 (Colombia=Bogotá).

Calliste vitriolina, SCL., 1860c, p. 86 (Perucho; Puellaro); HART., 1898, p. 481 (Ibarra); S. & F., 1899a, p. 15 (La Concepcion); GOODF., 1901, p. 461 (Gualea; Nono; Intag; Chota Valley).

Calospiza vitriolina, L. & R., 1922, p. 84 (Nanegal).

Ibarra, 1 ♂, 1 ♀; Quito region, 3 ♂.

RANGE.—Arid and semi-arid regions from the Tropical to the Temperate Zone northern Ecuador and Colombia.

We have only trade skins. They agree with specimens from the Bogotá region.

(4189) **Tangara lavinia lavinia** (Cass.)

Calliste lavinia CASS., Proc. Acad. Nat. Sci. Phila., X, 1858, p. 178 (Isthmus of Darien).

Calliste emilix, SCL., Ibis, 1901, p. 596, pl. xii, fig. 1 (San Javier); HELLM., Rev. Franc. d'Orn., 1910, p. 161 (crit.).

RANGE.—Tropical Zone: the species, northwestern Ecuador to Honduras; the race, northwestern Ecuador to Panama.

We have specimens only from western Colombia.

(4191) *Tangara gyroloides catharinæ* (Hellm.)

Calospiza gyroloides catharinæ HELLM., P. Z. S., 1911, p. 1106 (Chaquimayo, Carabaya, 3,000 ft., s. e. Peru).

Calliste gyroloides, SCL., 1854, p. 115 (Quijos); 1858a, p. 74 (Napo); 1858b, p. 453 (Zamora); B. & T., 1885, p. 78 (Mapoto); ALLEN, 1889, p. 71 (Napo); S. & F., 1899a, p. 15 (San José; Valle del Zamora).

Calospiza gyroloides, MEN., 1911, p. 95 (Gualaquiza sp. only).

Zamora, 8♂; Macas region, 1; Rio Suno, 1 ♀; below San José, 2♂; below Oyacachi, 1♂, 1 ♀.

RANGE.—Tropical and Subtropical Zones, Amazonian slopes Bolivia to Colombia.

The bill appears to average larger in more southern specimens, but with this exception I detect no racial difference in a good series taken from Bolivia to eastern Colombia.

(4192) *Tangara gyroloides bangsi* (Hellm.)

Calospiza gyroloides bangsi HELLM., P. Z. S., 1911, p. 1105 (Boquete, Chiriqui; crit.); L. & R., 1922, p. 84 (Gualea; Mindo).

Calliste gyroloides, SCL., 1859a, p. 139 (Pallatanga); 1860c, p. 87 (Nanegal); 1860e, p. 292 (Esmeraldas); B. & T., 1883, p. 545 (Chimbo); HART., 1898, p. 482 (Chimbo); GOODF., 1901, p. 461 (Canzacota; San Nicolas; Gualea).

Calospiza gyroloides, MEN., 1911, p. 95 (Santo Domingo, San Nicolas, Gualea, specimens only).

Bucay; junction Chanchan and Chiguancay (Rhoads).

Esmeraldas, 5♂, 4 ♀; Rio de Oro, 3♂; Naranjo, 2♂; Bucay, 3♂, 1 ♀; Chimbo, 1♂; La Chonta, 1♂; Portovelo, 3♂; Punta Santa Ana, 1 ♀; Rio Pindo, 1 ♀; Salvias, 2♂; Las Piñas, 2♂, 1 ♀; Guainche, 4♂, 1 ♀; Alamor, 6♂, 9 ♀; Cebollal, 4♂, 1 ♀.

RANGE.—Tropical and Subtropical Zones: the species, Bolivia to Costa Rica; the race, western Ecuador and southwestern Colombia; replaced north of the Patia by *T. g. gyroloides*, reappearing in eastern Panama and extending thence to Costa Rica.

The fact that western Ecuadorean specimens of this species are not separable from *bangsi* of Panama has been commented on by previous authors (Hellm., *loc. cit.*; Chapm., Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 597). The fact that true *gyroloides* has been recorded from both the Tropical and Subtropical Zones of western Colombia makes it improbable that *bangsi* occurs in the same region, and I am now of the opinion that the resemblance of the western Ecuadorean to the Panama bird is due to parallelism. This theory finds support in the fact that two specimens from Andalucia (4,000 to 5,000 ft.), on the western slope of the East Andes near the head of the Magdalena Valley, have the yellow shoulder-patch and nape-ring as well developed as in western Ecuadorean birds, and are therefore *bangsi* so far as these characters are concerned. It is, however, possible that these facts

specimens may be actual intergrades between true *gyroloides* and *catharinæ*. In any event, proved cases of absolute or essential parallelism are now too numerous for us to be surprised at an addition to their number. This is particularly true when the characters concerned are known to be especially variable.

The representative of this species in central Brazil is evidently *T. albertinæ*, and in the Guianas, *T. gyrola*.

(4200) ***Tangara mexicana boliviana* (Bonap.)**

Callospiza boliviana BONAP., Compt. Rend., XXXII, 1851, p. 80 (Guarayos, Bol.).

Calliste boliviana, GOODF., 1901, p. 462 (Rio Tiputini).

'Napo,' 3; Rio Suno, 1 ♂.

RANGE.—The species, Guiana to Bolivia; the race, Amazonian slopes, Bolivia to Colombia.

This is evidently not a common species in Ecuador whence, aside from three trade-skins, we have only one specimen.

(4202) ***Tangara nigroviridis nigroviridis* (Laf.)**

Tanagra nigroviridis LAFR., Rev. Zool., 1843, p. 69 ("Bogotá" = east Bogotá region).

Calliste nigroviridis, GOODF., 1901, p. 462 (Baeza; "yellow variety").

Baeza, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to Venezuela; the race, north-eastern Peru, eastern Ecuador, and eastern slope of East Andes, Colombia.

Two forms of this species occur in the Bogotá region, a bluish and a greenish. Of the former we have specimens from above Fusugasugá and from Subia. This is evidently, therefore, the western form (*consobrina* Hellm). It occupies also the Central Andes of Colombia and West Andes of Colombia and Ecuador.

Of the greenish form we have only 'Bogotá' specimens without locality. The type of *nigroviridis*, kindly loaned me by Mr. Bangs, is of this greenish form. All these greenish birds agree with specimens from eastern Ecuador and this, in connection with the further fact that the western slope of the East Andes is occupied by the bluish *consobrina*, warrants the conclusion that Lafresnaye's type came from the east Bogotá region.

The whole case is correctly stated by Hellmayr,¹ except that the localities on the western slope of the East Andes, which he placed under *nigroviridis*, should be placed under *consobrina*.

¹ Arch. für. Naturg., 1924, p. 180.

(4202a) *Tangara nigroviridis consobrina* Hellm.

Tangara nigroviridis consobrina HELLM., Anz. Ornith. Gesell. Bayern, 1921, p. 27 (San Pablo, Col.).

El Chiral, 4 ♂, 2 ♀; Zaruma, 3 ♂, 2 ♀; Punta Santa Ana, 1 ♂; San Bartolo, 1 ♀; Alamor, 2 ♂, 1 ♀.

RANGE.—Subtropical Zone: Colombia (except eastern slope of East Andes) and western Ecuador.

There is considerable variation in the 'blueness' or 'greenness' of birds from the same locality. I can find no racial difference in Ecuadorean and Colombian birds from west of the East Andes.

(4205) *Tangara larvata fanny* (Lafr.)

Aglaia fanny LAFR., Rev. Zool., 1847, p. 72 (Buenaventura, Col.).

Calliste larvata francescæ, HART., 1898, p. 482 (Cachaví).

Esmeraldas, 3 ♂, 1 ♀; Manaví, 1 ♂.

RANGE.—Tropical Zone: the species, western Ecuador to southern Mexico; the race, western Ecuador to eastern Panama.

These specimens agree with a series from western Colombia.

(4206) *Tangara nigrocincta* (Bonap.)

Aglaia nigro-cincta BONAP., P. Z. S., 1837, p. 121 (w. Brazil).

Calliste thalassina, SCL., 1854, p. 115 ("Quijos").

Calliste nigricincta, S. & F., 1899a, p. 16 (Gualaquiza); GOODF., 1901, p. 463 (Rio Tiputini).

Rio Suno, 2 ♀.

RANGE.—Tropical Zone; Bolivia to Guiana.

(4208) *Tangara cyaneicollis cæruleocephala* (Swains.)

Aglaia cæruleocephala SWAINS., Anim. in Menag., 1838, p. 356 (Peru).

Calliste cyanicollis, SCL., 1854, p. 115 (Quijos).

Calliste cyaneicollis, SCL., 1858b, p. 452 (Gualaquiza; Zamora); GOODF., 1901, p. 463 (Baeza).

Calliste cæruleocephala, B. & T., 1885, p. 79 (Machay; Mapoto); S. & F., 1899a, p. 16 (Valle del Zamora).

Sabanilla, 3 ♂, 1 ♀; Zamora, 6 ♂, 2 ♀; Macas region, 2; Rio Suno, below San José, 1 ♂; Baeza, 3 ♂, 4 ♀; below Oyacachi, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone: the species, southern Brazil and Bolivia to Venezuela; the race, northern Peru to eastern Colombia.

Specimens from as far north as the Chanchamayo region are referable to true *cyaneicollis*.

(4211) *Tangara cyaneicollis cyanopygia* (Berl. & Tacz.)

Calliste cyanopygia BERL. & TACZ., P. Z. S., 1883, p. 545 (Chimbo, Ec.); ALLEN, 1889, p. 71 (Nanegal); HART., 1898, p. 481 (Chimbo); S. & F., 1899a, p. 16 (Gualea; Rio Peripa); GOODF., 1901, p. 464 (Canzacota; Gualea; w. Pichincha, from 6,000–8,000 ft.).

Calliste cyaneicollis, SCL., 1860e, p. 292 (Esmeraldas).

Calospiza cyanopygia, MEN., 1911, p. 96 (Santo Domingo; Gualea); L. & R., 1922, p. 84 (Gualea).

Bucay (Rhoads).

Esmeraldas, 4♂, 1♀; coast of Manaví, 2♂; Chimbo, 1♀; Santa Rosa, 1♂.

RANGE.—Tropical and Subtropical Zones; western Ecuador.

Although so different in other respects, it is interesting to note that in the color of its head this race agrees with the Bolivian form.

(4212) *Tangara ruficervix ruficervix* (Prev. & Des Murs)

Tanagra ruficervix PREV. & DES MURS, Voy. Vénus, Atlas Ois., 1846, pl. v, fig. 1 (no type-locality).

Calliste leucotis SCL., Jard. Contrib. Ornith., 1851, p. 58 (Ecuador).

Calliste ruficervix, SCL., 1859a, p. 139 (Pallatanga); B. & T., 1888, p. 288 (Cayandeled); ALLEN, 1889, p. 71 (Gualea; Batonago); GOODF., 1901, p. 462 (San Nicolas; Intag).

Calospiza ruficervix, MEN., 1911, p. 97 (San Nicolas; Santo Domingo).

'Gualea,' 2♂; Cayandeled, 1♀; El Chiral, 1♂; Zaruma, 1♀.

RANGE.—Subtropical Zone: the species, northern Peru to Colombia; the race, Colombia and western Ecuador. Represented by *T. fulvicervix* from central Peru to Bolivia.

In our western Ecuadorean specimens the brown occipital band averages wider, the bill longer than in those from the Bogotá region, but my material does not determine satisfactorily the relations of birds from these two areas. Should the western Ecuadorean form be separable it might take the name *leucotis* of Sclater.

(4213) *Tangara ruficervix taylori* (Tacz. & Berl.)

Calliste taylori TACZ. & BERL., P. Z. S., 1885, p. 78 (Machay, Ec.).

Below Oyacachi, 1♀. Northern Peru: Chaupe, 5♂, 1♀.

RANGE.—Subtropical Zone; northern Peru and eastern Ecuador.

Differs from true *ruficervix* chiefly in having the occipital band wider and more orange-ochraceous, the forehead and nuchal band bluer, less

purplish. I have seen no intergrades but the difference between the two is certainly racial in character.

It is noteworthy that while the male of the Bolivian *fulvicervix* in its much more intense blue differs strikingly in color from *ruficervix*, the females of the two are very much more alike in general color. This sexual difference, and the lack of black borders to the occipital band, induce a belief in the specific distinctness of these two birds.

(4215) **Tangara laboratorides laboratorides** (Boiss.).

Tanagra laboratorides BOISS., Rev. Zoöl., 1840, p. 67 (Bogotá).

Calliste laboratorides, GOODF., 1901, p. 463 (Gualea).

Calospiza laboratorides, MEN., 1911, p. 97 (Santo Domingo; Gualea); L. & R., 1922, p. 84 (Gualea; Mindo).

RANGE.—Subtropical Zone: the species, Colombia, western Ecuador and northern Peru; the race, Colombia and western Ecuador.

We have no Ecuadorean specimens of this species, and I cannot, therefore, say whether birds from this region should be referred to true *laboratorides* or to *T. l. chaupensis* of northern Peru.¹

Specimens from the West Andes of Colombia, as far south as the latitude of Popayan, agree, however, with an East Andes series, and it is probable, therefore, that the western Ecuadorean bird is also referable to *laboratorides*. The occurrence of this species at Chaupe, northeast of Huancabamba, is of special interest as indicating its origin from the west instead of the east as customary with the birds of the Chaupe region. The species is unknown from eastern Ecuador but occurs in all three ranges of the Colombian Andes.

(4216) **Tangara lutleyi** Hellm.

Tangara lutleyi HELLM., Verh. der Orn. Gesell. Bayern, XIII, 1917, p. 198. New name for *Calliste melanotis* preoccupied. SCL., Ibis, 1876, p. 408, pl. xii, fig. 1 (Rio Napo, Ec.)

Tangara melanotis, B. & T., 1885, p. 79 (Machay).

Calliste cyanotis, SCL., 1859b, p. 441 (Rio Napo).

Sabanilla, 1 ♀; Lower Sumaco, 1 ♂.

RANGE.—Subtropical Zone; Urubamba Valley, Peru, to eastern Colombia.

I detect no racial variation in specimens from throughout the range of this species.

¹ *Tangara laboratorides chaupensis* Chapm., Amer. Mus. Novit., No. 160, 1925, p. 10 (Chaupe, Peru).

(4219) **Tangara parzudakii** (Lafr.)

Tangara parzudakii LAFR., Rev. Zoöl., 1843, p. 97 (Bogotá).

Calliste parzudakii, SCL., 1854, p. 115 (Quijos); GOODF., 1901, p. 463 (Baeza).

Calospiza parzudakii, L. & R., 1922, p. 84 (Baeza).

Sabanilla, 1 ♂; Baeza, 5 ♂, 3 ♀.

RANGE.—Subtropical Zone; southern Peru to eastern Colombia.

As the following measurements show, specimens from Chaupe, northern Peru, near the type locality of *T. p. florentes* Bangs and Noble, do not differ materially in size from topotypical birds, thus agreeing with a series from the Urubamba Valley of Peru,¹ I therefore conclude that *florentes* must have been based on either a wrongly sexed or an exceptionally large individual.

Measurements		Wing mm.	Tail mm.
Chaupe, Peru	♂	85.5	55.5
Chaupe, Peru	♂	83	53
Chaupe, Peru	♂	80	53
Chaupe, Peru	♀	83	54
Chaupe, Peru	♀	81	52
Chaupe, Peru	♀	84	53
Subia, near Bogotá, Col.	♂	81	54
Subia, near Bogotá, Col.	♂	86	56
Above Fusugasugá, Col.	♂	85	56
La Palma, Col.	♂	85	58
Above Fusugasugá, Col.	♀	83	56
Subia, near Bogotá, Col.	♀	80	55

(4220) **Tangara lunigera** (Scl.)

Calliste lunigera SCL., Contrib. Ornith., 1851, p. 65, pl. lxx, fig. 2 (Ecuador); 1860c, p. 87 (Nanegal); B. & T., 1884, p. 289 (Cayandeled); ALLEN, 1889, p. 71 (Nanegal; Milligalli); S. & F., 1899a, p. 16 (Gualea; Nanegal); GOODF., 1901, p. 463 (Canzacota; Gualea).

Calospiza lunigera, MEN., 1911, p. 97 (San Nicolas).

Calospiza parzudakii lunigera, L. & R., 1922, p. 84 (Gualea; Nanegal).

Near Quito, 2 ♂; Gualea, 1 ♂, 4 ♀; Milligalli, 1 ♂; El Chiral, 1 ♂.

RANGE.—Subtropical Zone; western Ecuador.

An obvious representative of *T. parzudakii* which apparently has been derived from the east, since *parzudakii* is unknown in western Colombia.

¹ Bull. No. 117, U. S. Nat. Mus., p. 118.

(4221) **Tangara xanthocephala venusta** (Scl.)

Calliste venusta SCL., P. Z. S., 1854, p. 248 (Bogotá); 1858a, p. 74 (Napo); B. & T., 1884, p. 289 (Cayandeled); 1885, p. 80, (Machay); GOODF., 1901, p. 463 (Canzacota; Baeza; only *Calliste* same on both sides of Andes)

Calospiza venusta, L. & R., 1922, p. 84 (Gualea).

Baeza, 5 ♂, 3 ♀; below Oyacachi, 1 ♂; upper Sumaco, 1 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to Venezuela; the race, northern Peru, eastern Ecuador, Colombia to Venezuela.

A large series of this species, representing the greater part of its range, is readily separable into three races as follows:

Tangara xanthocephala venusta.—Crown light cadmium. Colombia (all three ranges of the Andes), eastern Ecuador, and northeastern Peru. Forty specimens.

Tangara xanthocephala xanthocephala.—Crown cadmium-yellow. Central eastern Peru (Chanchamayo region). Seven specimens.

Tangara xanthocephala lamprotes.—Crown cadmium-orange. Southern Peru (Urubamba Valley) to Bolivia. Forty-four specimens.

Aside from the difference in the color of the crown, there is also a gradual increase, from the north southward, in the amount of black on the anterior part of the back and nape.

In spite of the fact that our large series shows no intergrades, I have no doubt of their occurrence and hence rank the three forms as subspecies.

(4224) **Tangara chrysotis** (Du Bus)

Calliste chrysotis DU BUS, Esquiss. Orn., 1845, pl. vii ("Perou"); SCL. 1859b, p. 440 (Rio Napo); B. & T., 1885, p. 79 (Machay).

'Napo,' 1; 'Ecuador,' 1; Sabanilla, 1 ♂, 1 ♀; Zamora, 1 ♂, 1 ♀; below Oyacachi, 1 ♀. Peru: Chaupe, 1 ♂, 1 ♀; Santo Domingo, 2. Bolivia: Yungas, 2 ♀.

RANGE.—Subtropical Zone; Bolivia to eastern Ecuador.

Two old native-made skins are more golden by reflected light than recently collected ones, a fact which induced Mr. Todd (who had only these two skins from Ecuador for comparison) to describe the Bolivian form as new.¹

The difference in "the rufous of the underparts" to which Mr. Todd refers proves to be individual, or, at best, an average character, Chaupe birds being quite as light below as Bolivian ones and a Santo Domingo specimen being as dark as one from Oyacachi. In short, the characters of this species seem to be remarkably constant.

¹ *Tangara chrysotis cochabambæ* Todd, Proc. Biol. Soc. Wash., XXXVII, 1924, p. 121.

(4227) **Tangara heinei** (Cab.)

Procnias heinei CAB., Mus. Heine, I, 1850, p. 31 (Colombia).

Tanagra atricapilla LAFR. and authors, not of Gmelin.

Below Oyacachi, 2♂, 2♀.

RANGE.—Subtropical Zone; Colombia and northeastern Ecuador. New to Ecuador.

An adult male is slightly more purple above than Colombian specimens.

(4229) **Tangara argentea fulvigula** (Berl. & Stolz.)

Calospiza fulvigula BERL. & STOLZ., Ornith., XIII, 1906, p. 80 (Tambillo, Peru).

Calliste argentea, SCL., Cat. Bds. B. M., XI, 1886, p. 137 (Jima, Ec.—Buckley).

Above Zaruma, 2♂; Punta Santa Ana, 1♀; Alamor, 2♂; Loja, 1♂, 1♀. Peru: Palambla, 4♂, 3♀; Chaupe, 6♂, 2♀.

RANGE.—Subtropical Zone: the species, eastern Peru to western Ecuador; the race, northwestern Peru and southwestern Ecuador.

A well-marked race distinguished from *argentea argentea* (Urubamba, 3♂, 1♀; Utcuyacu, above Merced, 7♂, 6♀) chiefly by its more richly colored throat, more silvery back, and more greenish blue wing-margins. Specimens from the southern and northern limits of the range of the species average larger.

(4232) **Iridosornis rufivertex rufivertex** (Laf.)

Arremon rufivertex LAFR., Rev. Zool., 1842, p. 335 = *Iridosornis dubusia* (Bonap.) and of authors. See Bangs and Penard, Bull. M. C. Z., 1919, p. 36.

Loja, 1♂; upper Rio Upano, 7♂, 1♀; Oyacachi, 2♂, 4♀.

RANGE.—Humid Temperate Zone; East Andes of Ecuador and Colombia.

(4232a) **Iridosornis rufivertex ignicapillus** Chapm.

Iridosornis dubusia ignicapillus CHAPM., Bull. A. M. N. H., XXXIV, 1915, p. 656 (Andes west of Popayan, Col.).

Iridiornis dubusia, ALLEN, 1889, p. 71 (Napo).

Iridornis dubusia, GOODF., 1901, p. 464 (Pichincha and Corazon, 7,500 ft.); MEN., 1911, p. 98 (Siglon; Liguí; road to Gualea).

Iridornis dubusia ignicapillus, L. & R., 1922, p. 84 (below Nono).

Verdecocha, 2♂, 1♀.

RANGE.—Humid Temperate Zone, Central and West Andes of Colombia (except northern end) and Ecuador.

The receipt of much additional material casts some doubt on the validity of this race, and its status can be settled only by the acquisition of adequate topotypical specimens. Our recently collected specimens from western Ecuador agree with a topotypical series of *ignicapillus*, and have the crown more intensely colored than a fresh series from eastern Ecuador which are like specimens taken by us at El Piñon, near Bogotá, in 1913. Five old native-made 'Quito' skins, however, agree with eastern Ecuadorean birds. It hardly seems possible that all these specimens came from the East Andes, and if any of them came from the West Andes their resemblance to true *rufivertex* is due either to fading or individual variation.

(4236) *Iridosornis porphyrocephala* *Scl.*

Iridornis porphyrocephala *SCL.*, P. Z. S., 1855, p. 227, pl. cx (Ecuador); Cat. Bds. B. M., XI, 1886, p. 141 (Intag—Buckley).

'Quito,' 1.

RANGE.—Subtropical Zone, West Andes of Ecuador and Colombia and central Andes of Colombia.

This appears to be a rare bird in Ecuador whence we have only an old native-made skin, and where it is otherwise known only from similar skins in the British Museum.

(4241) *Pœcilothraupis lunulata atricrissa* *Cab.*

Pœcilothraupis atricrissa *CAB.*, J. f. O., 1866, p. 165 (Ecuador); S. & F., 1899a, p. 16 (El Troje; Frutillas; Papallacta); L. & R., 1922, p. 84 (Lloa; above Nono).

Tanagra lunulata, *JARD.*, 1856, p. 91 (Andes east of Quito).

Pœcilothraupis lunulata, *SCL.*, 1858c, p. 551 (Matos); 1860b, p. 76 (Lloa); 1860c, p. 86 (Calacali; above Puellaro); B. & T., 1884, p. 289 (Cechce); *GOODF.*, 1901, p. 464 (Pichincha and Papallacta, 9,500–11,500 ft.).

Pœcilothraupis lunulata atricrissa, B. & T., 1885, p. 80 (San Rafael); *MEN.*, 1911, p. 98 (Nono; San Gabriel; Ligui; Pongo).

Trichothraupis quadricolor, *ALLEN*, 1889, p. 71 (Pichincha).

Hacienda Garzon (Rhoads).

'Pichincha,' 18; Yanacocha, 1 ♂, 2 ♀; Bestion, 3 ♂, 2 ♀; Taraguacocha, 2 ♂, 4 ♀; Papallacta, 1 ♀; Oyacachi, 3 ♂.

RANGE.—Humid Temperate Zone: the species, eastern Colombia to central Peru; the race, eastern and western Andes of Ecuador.

Represented in southeastern Peru and Bolivia by *P. igniventris* with which it may intergrade.

(4245) ***Pœcilothraupis palpebrosa palpebrosa* (Lafr.)**

Tanagra palpebrosa LAFR., Rev. Zoöl., 1847, p. 71 (Pasto, Col.).

Pœcilothraupis palpebrosa, B. & T., 1885, p. 80 (San Rafael); S. & F., 1899a, p. 16 (Pun; Papallacta); GOODF., 1901, p. 465 (Papallacta); MEN., 1911, p. 99 (Oyacachi).

Pœcilothraupis palpebrosa cærulescens, L. & R., 1922, p. 84 (below Papallacta).

Upper Rio Upano, 5; upper Sumaco, 7 ♂, 6 ♀; above Baeza, 5 ♂, 2 ♀; Oyacachi, 3 ♂, 3 ♀.

RANGE.—Humid Temperate Zone: the species, Peru to Venezuela; the race, eastern Ecuador and Colombia, except northern end of Central and West Andes.

Eastern Ecuadorean specimens average slightly paler than a Colombian series, but are obviously to be referred to true *palpebrosa*. None shows an approach to the east-central Peruvian *lacrymosa*.

(4247) ***Pœcilothraupis palpebrosa cærulescens* Berl.**

Pœcilothraupis cærulescens BERL., Verh. V. Int. Orn. Kongr. 1910, p. 1046 (Cuzco, Peru).

Taraguacocha, 4 ♂, 3 ♀; Loja, 2 ♂.

RANGE.—Humid Temperate Zone; northern Peru and southwestern Ecuador.

These specimens resemble a series from northern Peru. There appears to be no record of this species from northwestern Ecuador.

(4252) ***Buthraupis cucullata cucullata* (Jard.)**

Tanagra cucullata JARD., Ill. Orn. N. S., 1841, pl. xliii (Ecuador).

Buthraupis cucullata, B. & T., 1885, p. 80 (San Rafael); S. & F., 1899a, p. 17 (Pun; Pelagallo); GOODF., 1901, p. 465 (w. Pichincha and Papallacta, 9,000–11,500 ft.); MEN., 1911, p. 99 (Piscopata; Oyacachi); L. & R., 1922, p. 84 (below Lloa).

Pichincha, 3 ♂, 2 ♀; Loja, 2 ♂; Rio Upano, 2; upper Sumaco, 4 ♂, 3 ♀; above Baeza, 4 ♂, 2 ♀; below Papallacta, 2 ♂; below Oyacachi, 1 ♂.

RANGE.—Humid Temperate Zone: the species, Bolivia to Colombia; the race, Ecuador, Central and West Andes of Colombia.

The East Andean form of Colombia, *gigas*, while obviously representing *cucullata*, may not intergrade with it, and *montana* of Bolivia is doubtless also specifically distinct. The Peruvian forms, *cyanonota* and *saturata*, are distinguished by their narrower black throat and deeper yellow underparts; the latter form averages more intense in color.

(4256) ***Buthraupis eximia chloronota* (Scl.)**

Buthraupis chloronota SCL., P. Z. S., 1854, p. 97, pl. lxvi ("In republ. Equatoriana"); 1858c, p. 551 (Matos); B. & T., 1885, p. 80 (San Rafael); GOODF., 1901, p. 465 (w. Pichincha and Papallacta, 9,000–11,500 ft.); MEN., 1911, p. 100 (Macas; Pichincha; Pongo); L. & R., 1922, p. 85 (below Lloa).

Yanacocha, 1 ♂, 1 ♀.

RANGE.—Humid Temperate Zone: the species, Ecuador and Colombia; the race, eastern and western Ecuador and Central and West Andes of Colombia. Both this and the preceding species illustrate the faunal affinity of the Temperate Zone of eastern Ecuador with that of western, rather than eastern, Colombia.

I am not impressed by the need of generic separation for this species as proposed by Penard ('The Auk', 1919, p. 538).

(4258) ***Bangsia*¹ *edwardsi* (Elliot)**

Buthraupis edwardsi ELLIOT, Nouv. Arch. Mus. d'Hist. Nat., 1865, p. 77, pl. iv, fig. 2 (New Granada).

Huila, Mindo, 2 ♂, 3 ♀; Rio Blanco, below Mindo, 1 ♂.

RANGE.—Southwestern Colombia and northwestern Ecuador.

A very distinct species. As might be expected, Ecuadorian birds agree with those from Colombia.

(4259) ***Bangsia rothschildi* (Berl.)**

Buthraupis rothschildi BERL., Bull. B. O. C., VII, 1897, p. 3 (Cachabí, n. w. Ec.); HART., 1898, p. 482 (Cachabí).

RANGE.—Tropical Zone; northwestern Ecuador and western Colombia.

Our only specimen of this rare species is from the Rio Andaguéda, Colombia.

(4263) ***Compsocoma somptuosa somptuosa* (Less.)**

Tachyphonus somptuosa LESS., Traité d'Orn., 1831, p. 463 (Peru; cf. Hellm., Verh. der Orn. Gesell. Bayern, XI, 1913, p. 317).

Sabanilla, 1 ♂, 2 ♀; Zamora, 2 ♂, 1 ♀. Peru: Chaupe, 2 ♂, 3 ♀; Chelpes, 5 ♂, 3 ♀.

RANGE.—Subtropical Zone: the species, central Peru to Venezuela; the race, central Peru to southeastern Ecuador.

¹ *Bangsia* Penard, 'The Auk,' 1919, p. 538. A well-marked genus containing, in addition to the two species here included, *arcæi*, *melanochlamys*, and *aureocincta*.

Compared with a central Peruvian (Chelpes) series, which I assume represents true *somptuosa*, specimens from northern Peru (Chaupe) and Ecuador have the yellow areas slightly deeper and the crown-patch larger, both characters showing an approach toward *baezæ*. The fore-back is quite as black or even blacker than in true *somptuosa*. Possibly the more northern bird is separable. Several specimens of it almost, if not exactly, agree with a topotypical example of *venezuelana* Hellm.,¹ with a series of which the northern Peru and southeastern Ecuadorean birds should be compared.

(4263a) ***Compsocoma somptuosa alamoris* Chapm.**

Compsocoma somptuosa alamoris CHAPM., Am. Mus. Novit., No. 160, 1925, p. 12 (Alamor, Ec.).

El Chiral, 5♂, 2♀; Zaruma, 3♂, 3♀; San Bartolo, 4♂, 1♀; Salvias, 4♂, 1♀; Alamor, 4♂, 1♀; Celica, 1♂.

RANGE.—Subtropical Zone; southwestern Ecuador, north probably to the Chimbo Valley.

Subspecific Characters.—Similar to *C. s. antioquiæ* Berl. of the Subtropical Zone of the northern end of the Central and West Andes of Colombia but smaller (wing 89 mm., as compared with 97 mm. in *antioquiæ*). Resembling *C. s. cyanoptera* Cab. of northwestern Ecuador and western Colombia, but wings and tail margined with lighter blue (king's blue rather than cadet blue); foreback usually more or less mixed with the green of the rump; rump greener.

Only specimens from extreme southwestern Ecuador show much green in the foreback, but in all the rump is brighter green than in *cyanoptera*. Except for its smaller size, this race parallels *antioquiæ*.

(4265). ***Compsocoma somptuosa cyanoptera* Cab.**

Compsocoma cyanoptera CAB., J. f. O., 1866, p. 235 (Ecuador); S. & F., 1899a, p. 17 (Tambo de Yerba Buena; Niebli).

Compsocoma sumptosa, SCL., 1859a, p. 139 (Pallatanga); 1860c, p. 86 (above Puellaro).

Compsocoma sumptuosa cyanoptera, B. & T., 1883, p. 546 (Cayanded); 1884, p. 289 (Cayanded; Chaguarpata); MEN., 1911, p. 100 (Pelagallo; Jungilla; Guallea); L. & R., 1922, p. 85 (Nanegal; Mindo; Canchocoto).

Compsocoma victorini, GOODF., 1901, p. 465 (West Andes, 9,000–12,000 ft.); L. & R., 1922, p. 85 ("Mindo"—error).

Pagma Forest (Rhoads).

Guallea, 1♂; Pallatanga, 1♀; Quito, 1.

RANGE.—Subtropical Zone; western Ecuador from the Chimbo Valley northward in the West Andes and western slope of the Central Andes, Colombia, except at their northern ends.

¹ Hellmayr, Verh. der Orn. Gesell Bayern, XI, 1913, p. 317.

The dark, sometimes almost black, rump of this race is a more pronounced character than the deeper blue of its wing-margins. It increases in size northward and gradually merges into *antioquiæ*. The records of *victorini* by Goodfellow and by Lönnberg and Rendahl from western Ecuador are either based on wrongly labeled or wrongly identified specimens. In this connection see my reference to Hellmayr under *C. s. baezæ*.

(4265a) ***Compsocoma somptuosa baezæ* Chapm.**

Compsocoma somptuosa baezæ CHAPM., Am. Mus. Novit., No. 160, 1925, p. 13 (Baeza, Ec.).

Compsocoma victorini, B. & T., 1885, p. 80 (Machay).

Compsocoma somptuosa, GOODF., 1901, p. 405 (Papallacta).

Baeza, 6 ♂, 4 ♀.

RANGE.—Subtropical Zone, northeastern Ecuador.

Subspecific Characters.—Similar to *C. s. victorini* (Lafr.) of the Bogotá region, but back much darker green (hellebore rather than grass-green), the feathers narrowly margined with black, the nuchal region usually with more black; external margins of remiges and rectrices the same. Resembling *C. s. antioquiæ* Berl. of north-central Colombia, but back greener and wing and tail margins king's, instead of cadet-blue.

It is remarkable that two such unlike races of this species as *baezæ* and true *somptuosa* should both occur in eastern Ecuador, where the avifauna of the Subtropical Zone is essentially uniform. Concerning the relationships of this race with *victorini* and *antioquiæ* I have already written in describing *baezæ*. With *antioquiæ* it intergrades through specimens from the southern part of the range of that race, which approach *victorini* in their green backs. With *victorini* it probably intergrades by contact. Its direct relations with *somptuosa* remain to be determined. Hellmayr¹ has called attention to Goodfellow's error in attributing "*somptuosa*" to eastern, and *victorini* to western Ecuador. I let the records stand as published, but add that it is doubtful if this species occurs at all at Papallacta, which is in the Temperate Zone.

(4267) ***Compsocoma notabilis* (Jard.)**

Tanagra nobilis JARD., Edinb. N. Phil. Journ., II, 1855, p. 119 (e. Ecuador).

Compsocoma notabilis, GOODF., 1901, p. 466 (w. Pichincha, 7,000 ft.).

Ecuador, 1.

RANGE.—Subtropical Zone; western (and eastern ?) Ecuador and western Colombia.

Jardine described this species from eastern Ecuador, but it has been definitely recorded only from western Ecuador.

¹ Verh. Orn. Gesell. Bayern, XI, 1913, p. 317.

(4268) **Dubusia tæniata** (Boiss.)

Tanagra tæniata BOISS., Rev. Zoöl., 1840, p. 67 (Bogotá).

Dubusia tæniata, B. & T., 1884, p. 289 (Cechce); 1885, p. 81 (San Rafael); S. & F., 1899a, p. 17 (Pun); GOODF., 1901, p. 466 (Pichincha, 11,000 ft.; Papallacta); MEN., 1911, p. 101 (Lloa); L. & R., 1922, p. 85 (Chinguil).

Hacienda Garzon (Rhoads).

Yanacocha, 1 ♂; Taraguacocha, 1 ♀; Macas region, 2; upper Sumaco, 2 ♂, 1 ♀; above Baeza, 3 ♂; Papallacta, 2 ♂; Oyacachi, 2 ♀

RANGE.—Humid Temperate Zone; Ecuador and Colombia.

Represented in eastern Peru by *D. stictocephala*. Immature specimens lack the buffy breast-band and are much duller above.

(4272) **Thraupis caelestis caelestis** (Spix)

Tanagra caelestis SPIX, Av. Bras., II, 1825, p. 42, pl. lv, fig. 1 ("ad flumen Solimões prope pagum Fonteboa"); SCL., 1854, p. 115 (Quijos); 1858b, p. 453 (Gualaquiza); B. & T., 1885, p. 81 (Mapoto); ALLEN, 1889, p. 71 (Napo); S. & F., 1899a, p. 17 (Gualaquiza); GOODF., 1901, p. 466 (Archidona).

Sabanilla, 2 ♀; Zamora, 2 ♀.

RANGE.—Tropical Zone: the race, upper Amazon, eastern Peru to southeastern Colombia.

I have not material to determine satisfactorily the relations of *T. episcopus* with *T. caelestis*, or indeed of the members of the *caelestis* group. Eastern Ecuadorean birds agree with others from southeastern Colombia and differ from a topotypical series of *major* in averaging slightly bluer. The difference, however, is slight, and as the birds of the two series are alike in size, I assume that Ecuadorean and Colombian birds should be referred to *major* rather than to true *caelestis*; but of the latter I have not a satisfactory series.

(4276) **Thraupis cana quæsitæ** Bangs & Noble

Thraupis cana quæsitæ BANGS & NOBLE, The Auk, XXXV, 1918, p. 461 (Sullana, Peru).

Tanagra cana, SCL., 1859a, p. 139 (Pallatanga); 1860d, p. 274 (Babahoyo); 1860e, p. 292 (Esmeraldas); LAW., 1869, p. 236 (Puná Is.); B. & T., 1883, p. 545 (Guayaquil; Chimbo); 1884, p. 290 (Cayandeled); 1885, p. 81 (Yaguachi); HART., 1898, p. 482 (Cachaví; Chimbo); S. & F., 1899a, p. 17 (Vinces; Balzar; Rio Peripa); GOODF., 1901, p. 466 (Santo Domingo; Guanacillo); MEN., 1911, p. 101 (Santo Domingo); L. & R., 1922, p. 85 (Gualea).

Tanagra cyanoptera Tacz., 1877, p. 320 (Tumbez; Lechugal).

Bucay (Rhoads).

Esmeraldas, 2♂, 5♀; Chone, 4♂, 1♀; Rio de Oro, 1♂, 2♀; Daule, 1♀; Duran, 1♂; Naranjo, 1♂; Bucay, 2♂, 1♀; Puná Is., 1♂; Rio Jubones, 2♂; Santa Rosa, 5♂, 4♀; Portovelo, 6♂, 5♀; Las Piñas, 1♂, 2♀; Casanga, 1♂, 1♀; Salvias, 3♂; Guainche, 3♀; Lunamá, Alamor, 7♂, 4♀; Cebollal, 1♀. Peru: Pilares, 1♂, 1♀; Paletillas, 2♂, 3♀; Samata, 2♂; Tumbez, 1♀; Sullana, 5♂, 4♀; Palambla, 3♂, 3♀.

RANGE.—Tropical Zone: the species, northwestern Peru to southern Mexico, and through northern Colombia to Venezuela; the race, from at least Tumaco, Colombia, south to Palambla, Peru.

Apparently representing the *sayaca-cyanoptera* group of south of the Amazon. Inhabits semi-arid regions and partly-grown clearings. In specimens from southwestern Ecuador and Peru the wing averages about 5 mm. longer than in those from northwestern Ecuador.

The evident absence of this species from the Marañon valley and the wide area of its range northward indicates that it is of northern origin. Specimens from Tumaco are referable to *quæsita*, but others from San José, Col., I should place with *cana cana*.

(4281) *Thraupis palmarum melanoptera* (Scl.)

Tanagra melanoptera SCL., P. Z. S., 1856, p. 235 (n. e. Peru); SCL., 1858a, p. 74 (Napo); 1858b, p. 453 (Gualaquiza); GOODF., 1901, p. 466 (Archidona specimens only).

Zamora, 6♂, 2♀; Rio Suno, 1♀.

RANGE.—Tropical Zone: the species, Bolivia to Nicaragua and eastern Brazil; the race, Bolivia to Panama.

A stable, wide-ranging form:

(4282) *Thraupis palmarum violilavata* (Berl. & Tacz.)

Tanagra palmarum violilavata BERL. & TACZ., P. Z. S., 1883, p. 546 (Chimbo, Ec.); HART., 1898, p. 482 (Cachaví); MEN., 1911, p. 101 (Santo Domingo).

Tanagra melanoptera, SCL., 1860e, p. 292 (Esmeraldas).

Tanagra palmarum, GOODF., 1901, p. 466 (Santo Domingo specimens only).

Bucay (Rhoads).

Esmeraldas, 2♂; Rio de Oro, 1♀; Chone, 1♂, 1♀; Bucay, 1♀; Santa Rosa, 1♂; Las Piñas, 3♂, 1♀; Cebollal, 1♂.

RANGE.—Tropical Zone; western Ecuador.

The absence of this species from the Marañon Valley and its presence in western Colombia make it probable that this strongly differentiated race was derived from the north.

(4286) *Thraupis darwini* (Bonap.)

Tanagra darwini BONAP., P. Z. S., 1837, p. 121 (s. w. Peru).

Tanagra darwini, SCL., 1858b, p. 453 (Cuenca); 1858c, p. 551 (Riobamba); 1860c, p. 86 (Calacali); B. & T., 1884, p. 290 (Bugnac); HART., 1898, p. 482 (Ibarra; Cayambe); S. & F., 1899a, p. 17 (Valle di Chillo; Tumbaco); GOODF., 1901, p. 467 (Guápulo; Quito, in December and January); MEN., 1911, p. 102 (Tumbaco; Riobamba; Chambo); L. & R., 1922, p. 85 (Tumbaco; Quito).

Huigra; Riobamba; above Chambo; Cumbaya; Hacienda Garzon (Rhoads).

Quito, 2♂, 1♀; Guápulo, 1♀; Tumbaco, 3♂, 3♀; Cumbaya, 4♂, 2♀; Chimborazo, 1♂, 1♀; El Paso, 1♂, 1♀.

RANGE.—Chiefly Temperate Zone; Bolivia to northern Ecuador; descending to the coast in Peru.

With series from both the coast and tableland of Peru (including Cuzco), I am unable to find characters on which to recognize more than one form of this species. Specimens of both sexes from the coast average somewhat paler below, with larger bills, but the difference is repeatedly bridged by individual variation. All are essentially alike in size. It is remarkable not to find the widely varying nature of the range of this Tanager reflected, at least in a measure, by corresponding variations in size or color. It is possible that *T. darwini* is the Andean representative of the more southern *T. bonariensis*.

Measurements of Adult Males

		Wing mm.	Tail mm.	Culmen mm.
Moquegua, Prov. Moquegua, Peru	1	90	75	14
Huacho, Prov. Lima, Peru	2	89-90	68-74	14-15
Huaral, Prov. Lima, Peru	6	87-91	67-75	14-15
Cuzco, Prov. Cuzco, Peru	1	89	73	14
Calca, near Cuzco, Peru	1	87	72	14
Utcuyacu, Junin, Peru	5	87-90	67-72	13-15
Huancabamba, Piura, Peru	5	88-90	67-72	14-15
Near Quito, Ec.	5	89-91	69-73	14-15

(4288) *Sporathraupis cyanocephala cyanocephala* (d'Orb. & Lafr.)

Aglaia cyanocephala D'ORB. & LAFR., Syn. Av., I, 1837, p. 32 (Yungas, Bol.).

Tanagra cyanocephala, SCL., 1859a, p. 139 (Pallatanga); B. & T., 1884, p. 290 (Cayandeled; Surupata); S. & F., 1899a, p. 17 (Tambo de Yerba-buena); GOODF., 1901, p. 467 (Gualea).

Sporothraupis cyanocephala cyanocephala, MEN., 1911, p. 102 (Lanlin); L. & R., 1922, p. 85 (below Nono).

Guachanamá, 1♂; San Bartolo, 2♂; Loja, 2♂, 1♀.

RANGE.—Subtropical Zone: the species, Bolivia to Trinidad; the race, Bolivia to Ecuador.

I can find no racial differences between Ecuadorean and Bolivian specimens of true *cianocephala*, a surprising stability when it is remembered that north of Ecuador five races of this species are known. The apparent absence of this species from eastern Ecuador is noteworthy, and attention should also be called to the fact that this is one of the few wide-ranging subtropical species to reach Trinidad.

(4293) **Ramphocelus nigrogularis** (Spix)

Tanagra nigrogularis SPIX, Av. Bras., II, 1825, p. 35 pl. xlvii ("Ad flumen Solimoëns").

Ramphocelus nigrogularis, ALLEN, 1889, p. 71 (Napo).

Rhamphocelus nigrogularis, GOODF., 1901, p. 467 (Coca; Tiputini).

Rio Suno, 2 ♂, 3 ♀.

RANGE.—Tropical Zone; upper Amazonia.

There is much variation in the extent of black on the abdomen in specimens from the same locality. It may occupy practically the entire abdomen leaving only the sides red, or it may form only a black median stripe.

(4297) **Ramphocelus carbo carbo** (Pall.)

Lanius carbo PALL., Vroeg's Cat. Ois., Adumbr., 1764, p. 2 (Surinam).

Ramphocelus jacapa, B. & T., 1885, p. 81 (Machay; Mapoto).

Rhamphocelus jacapa, S. & F., 1899a, p. 17 (Gualaquiza; Valle del Zamora); GOODF., 1901, p. 467 (Archidona, Ec.).

Zamora, 8 ♂, 4 ♀; Macas region, 1 ♂, 2 ♀; Rio Suno, 2 ♀; San José, 2 ♀. Peru: Perico, Rio Chinchipe, 4 ♂, 3 ♀.

RANGE.—Tropical Zone: the species, South America east of the Andes and north of southern Brazil; the race, Guianas to southeastern Colombia and northeastern Peru.

Ecuadorean and particularly north Peruvian specimens average slightly duller in general color than a Guianan series, but the difference is slight and the birds are clearly *carbo carbo* rather than *connectens* of Central Peru, or *unicolor* of northeastern Colombia.

(4305) **Ramphocelus icteronotus** (Bonap.)

Ramphocelus icteronotus BONAP., P. Z. S., 1837, p. 121 (locality unknown); SCL., 1859a, p. 139 (Pallatanga); 1860a, p. 65 (Pallatanga); 1860c, p. 86 (Nanegal); 1860d, p. 274 (Babahoyo); 1860e, p. 292 (Esmeraldas); TACZ., 1877, p. 332 (Palma).

Ramphocelus icteronotus, B. & T., 1883, p. 546 (Chimbo); 1884, p. 290 (Cayandeled; Pinampunga); HART., 1898, p. 482 (Cachaví; Paramba; Chimbo); S. & F., 1899a, p. 18 (Vinces; Rio Peripa).

Rhamphocelus icteronotus, GOODF., 1901, p. 468 (Santo Domingo); MEN., 1911, p. 103 (Gualea; San Nicolas); L. & R., 1922, p. 85 (Gualea; Nanegal; Mindo).
Bucay; junction Chanchan and Chiguancay; Huigra (Rhoads)

Esmeraldas, 3 ♂, 2 ♀; Chone, 1 ♂, 2 ♀; Rio de Oro, 2 ♂, 1 ♀; Cuaque, 1 ♀; Bucay, 3 ♀; Naranjo, 1 ♂, 1 ♀; La Chonta, 1 ♂, 3 ♀; Rio Jubones, 2 ♂, 1 ♀; Santa Rosa, 1 ♀; Zaruma, 1 ♂, 2 ♀; Portovelo, 7 ♂, 5 ♀; Punta Santa Ana, 1 ♂; Rio Pindo, 1 ♀; Las Piñas, 1 ♂, 3 ♀; Cebollal, 2 ♀; Alamor, 5 ♂; Rio Pullango, 1 ♂.

RANGE.—Tropical Zone; northwestern Peru to western Panama.

The stability of this species throughout the greater part of its range makes all the more noteworthy its abrupt transition into *flammigerus* of the Cauca Valley.¹

(4306) *Calochætes coccineus* (Scl.)

Euchætes coccineus SCL., P. Z. S., 1858, p. 73, pl. cxxxii, fig. 1 (Rio Napo, Ec.); 1859a, p. 73 (Napo).

Lower Sumaco, 2 ♂.

RANGE.—Subtropical Zone; eastern Ecuador and southeastern Colombia.

(4307) *Piranga rubra rubra* (Linn.)

Fringilla rubra LINN., Syst. Nat., I, 1758, p. 181 (Virginia or Carolina).

Pyranga rubra, SCL., 1858a, p. 73 (Napo); B. & T., 1885, p. 81 (Machay); HART., 1898, p. 482 (Cachavi).

Pyranga æstiva, GOODF., 1901, p. 468 (Canzacota; Quito; Baeza).

Pyranga rubra rubra, L. & R., 1922, p. 85 (Quito, Jan., April 7, Sept. 3, Dec., Chaupieruz).

Junction Chanchan and Chiguancay (Rhoads).

Esmeraldas, 2 ♂ ad., 1 ♀ (Nov. 5–13); Zamora, 1 ♂ ad. (Oct. 24); Sabanilla, 1 ♂ ad. (Nov. 11); Rio Suno, 1 ♂ ad., 2 ♂ im., 3 ♀ (Feb. 2–March 22); below San José, 1 ♂ ad. (April 2); Baeza, 2 ♂ ad., 1 ♂ im., 2 ♀ (Nov. 2–27); below Oyacachi, 1 ♂ ad., 1 ♂ im. (Jan. 21–Feb. 4).

RANGE.—Breeds in the southeastern United States and winters southward to Guiana and Peru.

(4312) *Piranga erythromelas* Vieill.

Pyranga erythromelas VIEILL., Nouv. Dict. d' Hist. Nat., XXVIII, 1819, p. 293 (e. North America).

Pyranga æstiva, SCL., 1858a, p. 73 (Napo); 1860a, p. 65 (Pallatanga); 1860e, p. 293 (Esmeraldas); B. & T., 1883, p. 546 (Chimbo); 1885, p. 81 (Machay; Mapoto); S. & F., 1899a, p. 18 (Pun; Rio Peripa).

¹ See map in Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 611. In the last line of the caption, No. 2 should read No. 3, and No. 3 should read No. 2.

Rio Suno, 2♂ ad., full nuptial plumage (March 7 and 16); lower Sumaco, 1♂, completing prenuptial molt (Jan. 24); below San José, 1♂ im., 1♀ (March 13 and 16).

RANGE.—Breeds in eastern North America; winters as far south as Bolivia.

A male, taken January 24, has a few olive-green feathers in the center of the back, three or four yellowish ones below, and several rectrices are not quite fully grown. The greater and lesser coverts and tertials are new, but the primaries and secondaries, alula and primary coverts are of the juvenal plumage, showing that this is a bird born the preceding summer. The adult males, taken in March, have entirely completed the prenuptial molt, except that in one, taken March 7, one rectrix lacks half an inch of its full growth. An immature male from San José (March 13) is in unusual plumage. The general body color varies from flame-scarlet to orange-chrome; the upperparts, including crown, back, and rump, are obscurely streaked with dusky; the wings and their coverts are externally olive, with touches of red in the coverts and one lesser covert black margined with red. The molt is evidently nearly finished except in the tail, in which two old feathers are fuscous, margined with greenish, while the remaining feathers, which are nearly grown, are margined with a reddish old gold.

(4313) *Piranga leucoptera ardens* (Tsch.)

Phœnisoma ardens TSCH., Arch. für Naturg., I, 1844, p. 287 (Peru).

Piranga ardens, SCL., 1859a, p. 139 (Pallatanga); B. & T., 1883, p. 546 (Chimbo); 1885, p. 81 (Mapoto); L. & R., 1922, p. 86 (below Nanegal).

Piranga ardens, ALLEN, 1889, p. 71 (Nanegal).

Junction of Chanchan and Chiguancay (Rhoads).

Rios Coco and Chimbo, 1♂, 1♀; Zaruma, 1♂; Sabanilla, 1♂.

RANGE.—Tropical Zone: the species, Peru to Guiana and Mexico; the race, Peru to Colombia and Guiana.

There is much variation in the breadth of the wing-bars but it is apparently not correlated with locality.

(4314) *Piranga testacea tschudii* Berl. & Stolz.

Piranga testacea tschudii BERL. & STOLZ., P. Z. S., 1892, p. 375 (Lima).

Piranga azaræ TACZ., 1877, p. 332 (Palma).

Esmeraldas, 2♂, 1♀; La Puente, 1♂; Portovelo, 1♂, 3♀; Zaruma, 4♂, 2♀; Punta Santa Ana, 1♂, 2♀; Casanga, 1♀; Salvias, 1♀; Lunamá, 1♂, 3♀; Alamor, 5♂, 4♀; Pullango, 2♂, 2♀; Cebollal, 1♂, 1♀; Celica, 3♂, 2♀.

RANGE.—Tropical and Subtropical Zones: the species, Bolivia (?) to Guatemala; the race, western Peru (coast and Marañon Valley) to western Colombia.

I am unable to separate Ecuadorean specimens from a topotypical series of *tschudii*. Three adult males from western Colombia (Cócal, Popayan, and La Sierra) can be repeatedly matched by Peruvian birds, but a fourth from San Antonio is darker. It is evidently a bird of the latter type on which Bangs and Noble based their *testacea desidiosa*, of which they had six adult males from La Maria in the Dagua Valley and San Antonio. Whether *tschudii* actually reaches Colombia, or whether our three specimens are exceptional examples of *desidiosa* remains to be determined.

(4315) *Piranga rubriceps* Gray

Piranga rubriceps GRAY, Gen. Bds., II, 1849, pl. 89 (Bogotá); L. & R., 1922, p. 86 (Mindo).

Piranga rubriceps rufistigmata, L. & R., 1922, p. 86 (Baños).

Above Baeza, 2♂; upper Sumaco, 1♂, 1♀.

RANGE.—Subtropical Zone, northern Ecuador and Colombia.

These specimens agree with five from Colombia and show no trace of rufous on any of the under wing-coverts, indicating that *P. r. 'rufistigmata'* from Baños is based on individual rather than on racial variation.

(4319) *Chlorothraupis olivacea* (Cass.)

Orthogonyx olivaceus CASS., Proc. Acad. Nat. Sci. Phila., 1860, p. 140 (Mts., R. Truando, Col.).

Chlorothraupis olivacea, HART., 1898, p. 483 (Cachaví).

RANGE.—Northwestern Ecuador to eastern Panama.

We have specimens of this species from southwestern Colombia (where it occurs with *C. stolzmanni*) to eastern Panama, but none from Ecuador. The genus *Chlorothraupis* is unknown in eastern Ecuador and indeed appears to be unrecorded until we reach southeastern Peru, where *C. frenata* is found. I find no evidence of the intergradation of this species with *C. carmioli* of Nicaragua to Panama.

(4320) *Chlorothraupis stolzmanni* (Berl. & Tacz.)

Phaenicothraupis stolzmanni BERL. & TACZ., P. Z. S., 1883, p. 546 (Chimbo. w. Ec.).

Chimbo, 1♀; La Chonta, 5♂, 4♀.

RANGE.—Tropical Zone; western Ecuador and southwestern Colombia.

Too distinct a species to be considered the representative of any other known member of the genus. Specimens from Buenavista, Nariño, southwestern Colombia, are darker above and have the crown of a deeper tone than the back. They may be separable.

(4325) ***Phenicothraupis rubica rhodinolæma* Salv. & Godm.**

Phenicothraupis rhodinolæma SALV. & GODM., P. Z. S., 1867, p. 749 (Sarayacu, Ec.).

Rio Suno, 4♂, 5♀.

RANGE.—Tropical Zone: the species, Paraguay to Mexico; the race, eastern Ecuador. Unknown in western Ecuador.

The males closely resemble those of *amabilis* of Bolivia but are darker, while the females are paler, especially below, than the females of the Bolivian race.

(4329) ***Lanio atricapillus* (Gmel.)**

Tanagra atricapilla GMEL., Syst. Nat., I, 1789, p. 899 ("Gujana").

Lanio atricapillus, SCL., 1858a, p. 72 (Napo); 1858b, p. 454 (Gualaquiza).

Zamora, 2♂; Sabanilla, 1♂; Macas, 1♂; Rio Suno, 4♂, 3♀; below San José, 3♂, 2♀.

RANGE.—Tropical Zone; Guianas to eastern Ecuador. Represented by allied species as far north as Mexico but unknown in western Ecuador.

We lack adequate topotypical material.

(4332) ***Heterospingus xanthopygius* (Scl.)**

Tachyphonus xanthopygius SCL., P. Z. S., 1854, p. 158, pl. lxxix (Bogotá); B. & T., 1883, p. 547 (Chimbo).

RANGE.—Tropical Zone; western Ecuador to northwestern Colombia in the Cauca-Magdalena Fauna.

We have no Ecuadorean specimens.

(4334) ***Tachyphonus luctuosus luctuosus* Lafr. & d'Orb.**

Tachyphonus luctuosus LAFR. & D'ORB., Syn. Av. 1837, p. 29 (Guarayos, Bol.); SCL., 1854, p. 115 (Quijos).

Below San José, 3♂, 3♀; Rio Suno, 2♂, 2♀.

RANGE.—Tropical Zone: the species, Bolivia to Guiana and Panama; the race, east of the Andes. Represented from Costa Rica to Honduras by *T. axillaris*.

Ecuadorean specimens are slightly smaller than those from Bolivia, and the females are somewhat darker above.

(4334a) *Tachyphonus luctuosus panamensis* Todd

Tachyphonus luctuosus panamensis TODD, Proc. Biol. Soc. Wash., 30, 1917, p. 128 (Gatun, Panama).

Tachyphonus luctuosus, SCL., 1860d, p. 274 (Esmeraldas); TACZ., 1877, p. 332 (Palma); B. & T., 1883, p. 547 (Chimbo); HART., 1898, p. 483 (Chimbo); S. & F., 1899a, p. 18 (Rio Peripa); GOODF., 1901, p. 468 (San Nicolas; Coca).

Bucay; Junction Chanchan and Chiguancay (Rhoads).

Esmeraldas, 9♂, 2♀; Manaví, 4♂; Chongqn Hills, 1♂; Chimbo, 1♀; Naranjo, 1♂; Rio Jubones, 1♂; La Chonta, 1♀.

RANGE.—Tropical Zone; western Ecuador, Colombia west of the eastern Andes; Panama at least to the Canal Zone.

Ridgway (Bull. No. 50, U. S. N. M., II, 1902, p. 133) has called attention to the fact that in males of this species from west of the Andes, the white wing-coverts are more developed than in those from east of the Andes. The difference is an average one and does not permit of a definite boundary being drawn between the ranges of the northern and southern forms of this species, which are, therefore, here given arbitrarily. It is of interest to add that five out of seventeen adult males of *luctuosus* from Bolivia show traces of chestnut in the crown, but not one of forty-seven adult males from west of the Andes shows any signs of this marking.

(4336) *Tachyphonus cristatus cristatus* (Linn.)

Tanagra cristata LINN., Syst. Nat., I, 1766, p. 317 ("Cayania").

Tachyphonus cristatus, ALLEN, 1889, p. 71 (Napo); S. & F., 1899a, p. 18 (Valle del Rio Zamora).

Rio Suno, 3♂, 4♀; below San José, 3♂, 2♀.

RANGE.—Tropical Zone: the species, Cayenne to Colombia and Peru.

I can see no appreciable difference between these six males and two from Cayenne. Eight males from the Orinoco (Maipures; Suapure) have much larger bills, the crest is slightly smaller and deeper, more flame-color; the buff on the forehead and sides of the crest averages wider. The throat-patch presents no tangible racial differences. These Orinoco birds are separable, but in default of Bogotá specimens of '*cristatellus*' SCL., I am not in a satisfactory position to name them.

The upper Marañon form, *T. c. huarandosæ*¹ has a longer crest, smaller rump-spot, and the throat-mark is reduced to a mere streak.

Tachyphonus intercedens appears to represent this species in British Guiana, but the two are apparently specifically distinct. In addition to

¹ Chapm., Am. Mus. Novit., No. 187, 1925, p. 8.

the differences shown by the male, the female of *intercedens* is much more olive, less rufescent above, and lacks the gray nuchal collar and more pronounced gray forehead of *cristatus*. The underparts in the female of *intercedens* are more ochraceous, less rufous, than in *cristatus*.

(4340) ***Tachyphonus surinamus brevipes* Lafr.**

Tachyphonus brevipes LAFR., Rev. Zool., 1846, p. 206 (Colombia).

Tachyphonus napensis LAWR., Ann. Lyc. Nat. Hist. N. Y., VIII, 1864, p. 42 (Napo).

Tachyphonus surinamus, S. & F., 1899a, p. 18 (Valle del Rio Santiago); GOODF., 1901, p. 468 (mouth of Coca).

'Napo,' 2♂ ad. (types); Rio Suno, 4♂, 3♀. Peru: Pomará, Marañon, 4♂, 4♀.

RANGE.—Tropical Zone: the species, Guianas to Colombia and Peru; the race, eastern Colombia to eastern Peru.

Our specimens from Ecuador, as well as those from northeastern Peru, confirm the opinion of Bangs and Penard¹ that *napensis* of Lawrence is a synonym of *brevipes* Lafr. The rump in Ecuadorean specimens varies from buff to cinnamon-rufous, but the females, as Bangs and Penard show, are uniformly deeper below than in Guiana specimens.

(4346) ***Tachyphonus delatrii* Lafr.**

Tachyphonus delatrii LAFR., Rev. Zool., X, 1847, p. 72 (Buenaventura, w. Col.); SCL., 1859a, p. 139 (Pallatanga).

Tachyphonus delattrei, HART., 1898, p. 483 (Cachavi).

RANGE.—Tropical Zone; western Ecuador to Costa Rica.

We have a large series of this distinct species from Colombia but none from Ecuador.

(4347) ***Creurgops verticalis* Scl.**

Creurgops verticalis SCL., P. Z. S., 1858, p. 73, pl. cxxii (Rio Napo, Ec.); B. & T., 1885, p. 81 (Machay).

Baeza, 2♂, 3♀; Rio Sardinas, 1♀; below Oyacachi, 1♀.

RANGE.—Subtropical Zone; Peru, Ecuador, and Colombia. Occurs in western Colombia, but is unrecorded from western Ecuador.

Apparently constant in character throughout its range.

¹ Bull. Mus. Comp. Zool., 1919, p. 37.

(4350) **Eucometis penicillata** (Spix)

Tanagra penicillata SPIX, Av. Bras., II, 1825, pl. xlix, fig. 1, p. 36 (Brazil).

Eucometis albicollis, SCL., 1858a, p. 72 (Napo).

Rio Suno, 1 ♂.

RANGE.—Tropical Zone; Guiana to Peru and Colombia; eastern Ecuador.

A specimen in much-worn plumage.

(4354) **Mitrospingus cassini cassini** (Lawr.)

Tachyphonus cassinii LAWR., Ann. Lyc. Nat. Hist. N. Y., VII, 1861, p. 297 (Lion Hill, Panama).

Eucometis cassini, HART., 1898, p. 483 (Cachaví); GOODF., 1901, p. 468 (Santo Domingo).

Esmeraldas, 1 ♂, 1 ♀.

RANGE.—Tropical Zone: the species, western Ecuador north to Costa Rica; the race, north to Panama.

These two specimens agree with others from Panama.

(4365) **Erythrothlypis salmoni** (Scl.)

Dacnis salmoni SCL., Cat. Bds. B. M., XI, 1886, p. 27, pl. ii, fig. 2, ♀, (Remedios, Col.).

Nemosia rosenbergi ROTHs., Bull. B. O. C., XII, 1897, p. vi (Cachaví); HART., Nov. Zoöl., 1898, p. 483, pl. ii, fig. 1, ♂ (Cachaví).

RANGE.—Tropical Zone; northwestern Ecuador and western Colombia.

We have only Colombian specimens of this species.

(4373) **Hemithraupis flavicollis peruana** Bonap.

Hemithraupis peruana BONAP., Rev. Zoöl., 1851, p. 173 (Peru).

'Napo,' 1 ♂; below San José, 1 ♂; Rio Suno, 2 ♂.

RANGE.—Tropical Zone: the species, Guianas and Bahia to Colombia and Peru; the race, northern Peru, eastern Ecuador, and eastern Colombia.

(4375) **Hemithraupis guira guira** (Linn.)

Motacilla guira LINN., Syst. Nat., 1766, p. 335 (east Brazil).

Nemosia guira, GOODF., 1901, p. 469 (Archidona).

Macas region, 1 ♂; Rio Suno, 1 ♂, 3 ♀; below San José, 1 ♂. Peru: Rio Chinchipe, 4 ♂, 4 ♀.

RANGE.—Tropical Zone: the species, Paraguay to Cayenne and Colombia; the race, southeastern Brazil to eastern Ecuador.

These specimens are obviously referable to *guira* rather than to *guirina*. Possibly the 'Archidona' specimen which Hellmayr¹ refers to *guirina* was wrongly labeled.

(4378) **Hemithraupis guira guirina (Scl.)**

Nemosia guirina SCL., P. Z. S., 1856, p. 110 (Bogotá); B. & T., 1883, p. 547 (Chimbo).

Nemosia guira, TACZ., 1877, p. 744 (Santa Luzia).

Chimbo, 1 ♀.

RANGE.—Colombia (and western Ecuador?).

Our only western Ecuadorean specimen is a molting female, and I therefore merely follow Berlepsch and Taczanowski in referring the western Ecuadorean bird to *guirina*.

(4381) **Thlypopsis sordida amazonum Scl.**

Thlypopsis amazonum SCL., Cat. Bds. B. M., XI, 1886, p. 229 (Lower Ucayali).

Nemosia chrysopsis, S. & F., 1880, p. 155 (Sarayacu).

RANGE.—Tropical Zone: the species, Argentina to eastern Ecuador; the race, upper Amazonia.

We have no specimens.

(4384) **Thlypopsis ornata (Scl.)**

Nemosia ornata SCL., P. Z. S., 1859, p. 138 (Pallatanga, Ec.); 1860f, p. 428 (Pallatanga); B. & T., 1884, p. 290 (Cayandeled; Pedregal; Bugnac).

Thlypopsis ornata, HART., 1898, p. 484 (Ibarra); S. & F., 1899a, p. 18 (Niebli; Pun); GOODF., 1901, p. 469 (Mindo).

Huigra; Pagma Forest (Rhoads).

Taraguacocha, 1 ♂; Loja, 1 ?.

RANGE.—Chiefly Subtropical Zone in western Ecuador; recorded from eastern Ecuador only from Pun, in the Humid Temperate Zone.

A distinct species in which, however, a trace of yellow tinge on the throat suggests a relation with the *sordida* group.

(4389) *Sericossypha albocristata* (Lafr.)

Tanagra (*Lamprotes*) *albo-cristatus* LAFR., Rev. Zoöl., 1843, p. 132 ("Colombie"), *Sericossypha albicristata*, S. & F., 1899a, p. 18 (Pun); GOODF., 1901, p. 469 (Baeza, East Andes only); L. & R., 1922, p. 86 (Baeza).

Above Baeza, 1 ♀; upper Sumaco, 1 ♂.

RANGE.—Humid Temperate Zone; northern Peru through eastern Ecuador to Colombia.

We have also specimens from Colombia.

(4393) *Chlorospingus signatus* Berl. & Tacz.

Chlorospingus signatus BERL. & TACZ., P. Z. S., 1885, p. 82 (Machay; Mapoto, Ec.).

Guayaba, Rio Zamora, 1 ♂, 1 ♀; below Oyacachi, 2 ♂, 5 ♀; lower Sumaco, 2 ♂. Peru: Chaupe, 2 ♂, 3 ♀.

RANGE.—Subtropical Zone; northeastern Peru and eastern Ecuador.

Apparently a representative of *C. canigularis*, from which it differs in having a white post-ocular streak and darker auriculars. There is much variation in the extent of the post-ocular stripe, which appears to be longer in Peruvian specimens.

(4395) *Chlorospingus canigularis canigularis* (Lafr.)

Tachyphonus canigularis LAFR., Rev. Zoöl., 1848, p. 11 (Bogotá).

Chlorospingus canigularis, SCL., 1858a, p. 138 (Pallatanga); B. & T., 1883, p. 547 (Chimbo).

Rios Coco and Chimbo, 1 ♀; La Chonta, 2 ♂; Las Piñas, 1 ♂; Pullango, 1 ♂.

RANGE.—Subtropical Zone of Colombia and western Ecuador.

Ecuadorean specimens agree with topotypical ones, with the exception of a male from Pullango which has a narrow but evident white post-ocular streak reaching to the nape, and in this respect therefore resembles *signatus*, but has the gray auriculars of *canigularis*. The presence of the post-ocular mark in this otherwise typical specimen of *canigularis* indicates the mutational nature of this marking.

(4396) *Chlorospingus phaeocephalus* Scl.

Chlorospingus phaeocephalus SCL., P. Z. S., 1877, p. 521, pl. lii, fig. 2 ("Jina" = Jima), type, and Chillanes).

El Chiral, 3 ♂, 4 ♀; Zaruma, 1 ♀; Salvias, 1 ♀; lower Sumaco, 2 ♂, 1 ♀.

RANGE.—Subtropical Zone; southwestern and eastern Ecuador.

Doubtless represents *C. flavipectus* of eastern Colombia.

(4397) ***Chlorospingus flavigularis flavigularis* (Scl.)**

Pipilopsis flavigularis SCL., Rev. Zoöl., 1852, p. 8 (New Grenada).

Chlorospingus flavigularis, B. & T., 1885, p. 81 (Machay; Mapoto).

Guayaba, 1 ♀; Zamora, 1 ♂; Macas region, 3; below San José, 2 ♂, 5 ♀; lower Sumaco, 1 ♂, 1 ♀.

RANGE.—Subtropical Zone: the species, Bolivia to Veragua; the race, eastern and central Colombia south to Bolivia.

As I have already remarked,¹ individual variation obscures any racial variation in this race and invalidates the form from southeastern Peru for which I proposed the name *parvirostris*.

(4397a) ***Chlorospingus flavigularis marginatus* Chapm.**

Chlorospingus flavigularis marginatus CHAPM., Bull. A. M. N. H., XXXIII, 1914, p. 189 (Buenavista, Nariño, Col.).

Chlorospingus flavigularis, SCL., 1860c, p. 86 (Nanegal); B. & T., 1883, p. 547 (Chimbo); S. & F., 1899a, p. 19 (Gualea); GOODF., 1901, p. 470 (Gualea; Milligalli; Canzacota); MEN., 1911, p. 105 (Santo Domingo); L. & R., 1922, p. 86 (near Nanegal).

Junction Chanchan and Chiguancay (Rhoads).

Mindo, 2 ♂; above Naranjo, 1 ?; Chimbo, 2 ♂; Bucay, 1 ♀; La Chonta, 7 ♂, 3 ♀.

RANGE.—Subtropical Zone; western Ecuador and southwestern Colombia.

These specimens confirm the validity of this race, the affinities of which, as I have before remarked, appear to be with the Central American *hypophæus* rather than with true *flavigularis*.

(4399) ***Chlorospingus flavovirens* (Lawr.)**

Buarremon flavovirens LAW., Ann. Lyc. Nat. Hist. N. Y., VIII, 1867, p. 467 (Ecuador).

'Ecuador,' 1 (type; Amer. Mus., No. 41066, from the Lawrence Coll.).

RANGE.—Known only from the type labeled by Mr. Lawrence as from "Ecuador C. R. G."

The general yellowish olive color of this species suggests that of *Hemispingus atropileus*, but the bill is stouter than in that species and is very much like that of *C. flavigularis*.

¹ Bull. No. 117, U. S. Nat. Mus., 1921, p. 12.

(4400) *Chlorospingus semifuscus* Scl. & Salv.

Chlorospingus semifuscus SCL. & SALV., Nomen. Av. Neotr., 1873, p. 157 ("Quito") GOODF., 1901, p. 469 (East and West Andes, 7,000–11,500 ft.); MEN., 1911, p. 105 (Palmito); L. & R., 1922, p. 86 (below Calachi; below Nono).

'Gualea,' 2♂; 'Nono,' 1♀; Mindo, 1♀.

RANGE.—Subtropical Zone; northwestern (and eastern ?) Ecuador and western Colombia.

Goodfellow records this species from the East and West Andes, but our specimens, and all definite records, are from the West Andes. However, it is apparently represented in eastern Peru by the nearly allied *C. cinereocephalus* and is therefore to be expected in eastern Ecuador.

(4406) *Cnemoscopus*¹ *rubrirostris* (Lafr.)

Arremon rubrirostris LAFR., Rev. Zoöl., 1840, p. 227 (Bogotá).

Chlorospingus rubrirostris, GOODF., 1901, p. 469 (Papallacta).

Hemispingus rubrirostris, MEN., 1911, p. 105 (Oyacachi).

Below Papallacta, 2♂, 1♀; above Baeza, 5♂, 2♀; Oyacachi, 2♂, 2♀; upper Sumaco, 3♂, 2♀.

RANGE.—Temperate Zone; eastern Ecuador and all three ranges in Colombia.

Ecuadorean specimens average larger, with smaller, darker bills, the latter character suggesting an approach toward *chrysogaster*, apparently the Peruvian representative of *rubrirostris*. The relatively short tarsus and long wing on which the generic separation of this species is based also distinguishes *chrysogaster*, and the two form the known members of the genus *Cnemoscopus*.

(4402) *Hemispingus atropileus atropileus* (Lafr.)

Arremon atro-pileus LAFR., Rev. Zoöl., 1842, p. 335 ("Bolivia" = Bogotá).

Chlorospingus atripileus, SCL., 1860b, p. 76 (Lloa); 1860c, p. 86 (above Puellarro); B. & T., 1885, p. 81 (San Rafael); S. & F., 1899a, p. 19 (Pun); GOODF., 1901, p. 469 (w. Pichincha, 8,000 ft.).

Above Baeza, 5♂, 2♀; Oyacachi, 1♂; upper Sumaco, 3♂, 1♀.

RANGE.—Humid Temperate Zone; eastern and western Ecuador and all three ranges in Colombia. Represented in eastern Peru by *H. a. auricularis* Cab.

Twelve Colombian specimens, representing all three ranges, show no apparent racial variation.

¹ *Cnemoscopus* Bangs & Penard, Bull. M. C. Z., LXIII, 1919, p. 38 (type *Arremon rubrirostris* Lafr.).

(4408) *Hemispingus superciliaris superciliaris* (Laf.)

Arremon superciliaris LAFR., Rev. Zoöl., 1840, p. 227 (Bogotá).

Salvias, 1 ♀; Taraguacocha, 5 ♂, 3 ♀. Peru: El Tambo, 3 ♂, 3 ♀. Colombia: Palo Hueco, near Bogotá, 1 ♀; near Bogotá, 1 ♀, 3 ?.

RANGE—Humid Temperate Zone; East Andes, Colombia; southwestern Ecuador and northwestern Peru (eastern Peru and Bolivia ?)

A female, one of eight specimens from Taraguacocha, has the front of the crown blackish as in *nigrifrons*; with this exception all the birds above recorded are referable to true *superciliaris*. The range of this race, therefore, is evidently separated by that of *nigrifrons* in northern Ecuador. The explanation of this unusual case is to be found, I think, in the nature of the character differentiating these races rather than in any facts connected with their distribution or environment. The occurrence of specimens resembling *superciliaris superciliaris* in the range of *nigrifrons*, and of a specimen of *nigrifrons* at a locality whence the remaining birds in a series of eight are true *superciliaris*, indicates that the gray or black frontal is a mutational rather than environmental character. While gray or black is dominant in certain areas, either gray or black may appear without regard to range. Hence the dominance of the gray crown in southwestern Colombia is to be attributed to the action of parallelism rather than to any geographic connection or environmental affinity between these two regions.

(4409) *Hemispingus superciliaris nigrifrons* (Lawr.)

Chlorospingus nigrifrons LAWR, Ibis, 1875, p. 384 (Ecuador); B. & T., 1884, p. 290 (Cechce); S. & F., 1899a, p. 19 (El Troje; Chinguil; Frutillas; Niebli; Papalacta); GOODF., 1901, p. 469 (Milligalli; Gualea; Mindo).

Chlorospingus superciliaris, SCL., 1860a, p. 65 (Chillanes); 1860c, p. 86 (Nanegal).

Chlorospingus superciliaris nigrifrons, B. & T., 1885, p. 81 (San Rafael); MEN., 1911, p. 105 (Lloa).

Hemispingus superciliaris nigrifrons, L. & R., 1922, p. 86 (below Lloa, Calacali, and Nono).

Pagma Forest; above Chambo; Hacienda Garzon (Rhoads).

Mojanda Mts., 1 ♂ Yanacocha, 1 ♂, 1 ♀; Verdecocha, 1 ♂; above Gualea, 1 ♂; 'Quito,' 1; Zuna, Rio Upano, 2; upper Sumaco, 1 ♀. Colombia, Central Andes: Valle de las Pappas, 1 ♂, 2 ♀; Laguneta, 2 ♂, 1 ♀; Santa Isabel, 1 ♂.

RANGE.—Humid Temperate Zone; northern Ecuador, Central Andes of Colombia,

The color of the forehead in the birds listed above is subject to much variation which apparently is wholly individual. For example, a female from Valle de las Pappas has the front of the crown as gray as in topo-

typical specimens of *superciliaris superciliaris*, while in a second female from the same locality it is decidedly blackish, and the bird may be considered as fairly typical of *nigrifrons*. Again, one of two males from Laguneta at the northern end of the Central Andes has the front part of the crown black, while in the other it is largely olive-green, like the hindhead. Two birds from Yanacocha, on the northwestern slope of Pichincha, vary much as do those from the Valle de las Pappas; but the series as a whole is obviously different from a Bogotá series and also from one from southeastern Ecuador which, as stated above, is not separable from true *superciliaris*.

(4412) **Hemispingus frontalis frontalis** (Tsch.)

Hylophilus frontalis Tsch., Wieg. Arch. für Naturg., 1844, I, p. 284 (Peru).

Chlorospingus oleagineus, B. & T., 1885, p. 81 (Machay).

Baeza, 3 ♂, 2 ♀; Rio Sardinas, 1 ♂; lower Sumaco, 2 ♂.

RANGE.—Subtropical Zone; southeastern Peru, through eastern Ecuador to all of Colombia; *H. f. ignobilis* in western Venezuela.

The receipt of much additional material, including specimens from central and northern Peru, giving us, in all, thirty-one specimens of this bird, confirms my belief that *oleagineus* Scl. of Colombia is not separable from *frontalis* of Peru. In 1905, Berlepsch (J. f. O., p. 8) expressed a similar opinion, but he later¹ recognized *oleagineus*.

(4417) **Hemispingus melanotis** (Scl.)

Chlorospingus melanotis SCL., P. Z. S., 1854, p. 157, pl. lxxviii (Bogotá); B. & T., 1885, p. 82 (Baños).

Above Baeza, 2 ♂.

RANGE.—Subtropical Zone; Colombia and eastern Ecuador.

These specimens are essentially like others from the Bogotá region.

(4419) **Hemispingus ochraceus** (Berl. & Tacz.)

Chlorospingus ochraceus BERL. & TACZ., P. Z. S., 1884, p. 291 pl. xxiv, fig. 1 (Cayandeled; Chaguarpata, Ec.).

RANGE.—Subtropical Zone; western Ecuador.

We have no specimens from western Ecuador. The plate of this species leads one to believe that it is very near *H. melanotis*, of which it is probably the western Ecuadorean representative.

¹ Rev. Tanag., 1911, p. 1094.

(4420) *Pseudospingus verticalis* (Lafr.)

Nemosia verticalis LAFR., Rev. Zoöl., 1840, p. 227 (Bogotá).

Pseudospingus verticalis, S. & F., 1899a, p. 19 (Pun).

Above Baeza, 3 ♂, 2 ♀; Oyacachi, 6 ♂; upper Sumaco, 1 ♂.

RANGE.—Humid Temperate Zone; Central and East Andes of Colombia; eastern Ecuador.

These specimens resemble others from the Bogotá region. The black throat is fully developed in a juvenal male taken October 29, indicating that the complete and nearly complete absence of the black throat in two 'Bogotá' birds is doubtless due to individual variation.

(4422) *Urothraupis stolzmanni* Berl. & Tacz.

Urothraupis stolzmanni BERL. & TACZ., P. Z. S., 1885, p. 83 (San Rafael, Ec.); GOODF., 1901, p. 470 (Papallacta).

Upper Sumaco, 1 ♀.

RANGE.—Humid Temperate Zone; eastern Ecuador and central Colombia.

Our only other example of this rare species is from the northern end of the Central Andes.

(4426) *Psittospiza riefferi riefferi* (Boiss.)

Tanagra riefferi BOISS., Rev. Zoöl., 1840, p. 4 (Bogotá).

Psittospiza riefferi, SCL., 1860b, p. 76 (Lloa); B. & T., 1884, p. 292 (Chaguarpata; La Union); 1885, p. 84 (Baños); S. & F., 1899a, p. 21 (Pun); GOODF., 1901, p. 472 (Canzacota, 6,500 ft., Aug. and Sept.; below Baeza, 5,000 ft., March); L. & R., 1922, p. 86 (Canchocoto, 5,500 ft.).

'Gualea,' 3; below Papallacta, 1 ♂; above Baeza, 6 ♂, 3 ♀; upper Sumaco, 2 ♂, 2 ♀; Macas region, 1.

RANGE.—Chiefly Humid Temperate Zone: the species, Bolivia to Colombia; the race, Ecuador and Colombia.

These specimens agree with a Colombian series. Although sometimes found in the Subtropical Zone, this species is characteristic of the Temperate Zone. It is probable that most Subtropical Zone records, like that of the three 'Gualea' skins listed above, are based on native-collected birds.

The Peruvian *P. r. elegans* differs from *riefferi* not only in the narrow bluish band bordering the brown forehead, but in the greater amount of brown on the abdomen and in the throat. The Bolivian and south-eastern Peruvian race, *P. r. boliviana*, resembles *elegans* but lacks the blue on the crown.

(4431) *Oreothraupis arremonops* (Jard.)

Saltator arremonops JARD., Edinb. N. Phil. Journ., Series 2, II, 1855, p. 119 (Ecuador).

Oreothraupis arremonops, S. & F., 1899a, p. 22 (Nanegal); GOODF., 1901, p. 471 (Mindo).

Road to Nanegal, 1 ♂.

RANGE.—Subtropical Zone; western Ecuador and western Colombia.

(4433) *Cissopis leveriana minor* Tsch.

Cissopis minor TSCH., Faun. Per., Aves, 1846, p. 211 (Peru); SCL., 1858b, p. 454 (Gualaquiza).

Cissopis leveriana, S. & F., 1899a, p. 22 (Gualaquiza); GOODF., 1901, p. 471 (Archidona; mouth of Coca).

Sabanilla, 1 ♂; Zamora, 5 ♂, 4 ♀; Rio Suno, 5 ♂, 1 ♀; below San José, 2 ♀; Macas region, 5.

RANGE.—Tropical Zone: the species, northeastern Argentina to Colombia and the Guianas; the race, Bolivia to Colombia.

I follow current usage in accepting the name *minor* for these birds. They agree with Peruvian examples, but I am unable to see how they differ from two British Guiana specimens of true *leveriana*.

NOTE.—*Schistochlamys atra* doubtless occurs in eastern Ecuador but there is no record of its having done so.

FAMILY ICTERIDÆ. AMERICAN ORIOLES, OROPENDULAS,
GRACKLES, COWBIRDS, ETC.

(4438) *Clypeicterus oseryi* (Dev.)

Cassicus oseryi DEV., Rev. Zoöl., 1849, p. 57 (Pebas, e. Peru).

Clypeicterus oseryi, GOODF., 1901, p. 476 (mouth of Coca).

Rio Suno, 5 ♂.

RANGE.—Tropical Zone; eastern Ecuador and eastern Peru.

(4439) *Ocyalus latirostris* (Swains.)

Cassicus latirostris SWAINS., Anim. in Menag., 1838, p. 358 (Peru).

Ocyalus latirostris, L. & R., 1922, p. 86 (near Archidona).

RANGE.—Tropical Zone; eastern Ecuador and eastern Peru.

We have no Ecuadorean specimens.

(4440) *Zarhynchus wagleri wagleri* (Gray)

Cacicus wagleri GRAY, Gen. Bds., II, 1847, p. 342, pl. 85 (Coban, Guatemala).

Eucorystes wagleri, S. & F., 1899a, p. 28 (Rio Peripa).

Ocyalus wagleri, GOODF., 1901, p. 476 (Santo Domingo).

Zarhynchus wagleri, MEN., 1911, p. 107 (Lelia, near Santo Domingo).

Esmeraldas, 1 ♂.

RANGE.—Tropical Zone: the species, western Ecuador to Mexico; the race, western Ecuador to Guatemala.

Agrees with a good series from Colombia and eastern Panama. We have none from Guatemala. This species may be considered to represent *O. latirostris*, although very distinct from it.

(4444) *Gymnostinops yuracares* (d'Orb. & Lafr.)

Cassicus yuracares D'ORB. & LAFR., Syn. Av., II, Mag. de Zoöl., 1838, p. 2 (Yuracares, Bol.).

Cacicus yuracarium, SCL., 1858a, p. 72 (Napo).

Gymnostinops yuracarium, S. & F., 1899a, p. 28 (Valle del Rio Santiago).

'Napo,' 2; Rio Suno, 2 ♂, 2 ♀; below San José, 1 ♂, 1 ♀.

RANGE.—Tropical Zone; Bolivia to Venezuela.

I have made some remarks concerning the variations of this species in my paper on Colombian birds (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 624).

(4445) *Ostinops decumanus decumanus* (Pall.)

Xanthornus decumanus PALL., Spic. Zoöl., Fasc. VI, 1769, p. 1 (Surinam).

Cacicus cristatus, SCL., 1858a, p. 72 (Napo).

Ostinops cristata, SCL., 1858b, p. 455 (Gualaquiza); GOODF., 1901, p. 476 (Rio Coca).

Ostinops decumanus, S. & F., 1899a, p. 28 (Gualaquiza; Valle del Zamora); GOODF., 1901, p. 476 (Rio Coca).

Below San José, 1 ♀; Rio Suno, 3 ♂, 3 ♀.

RANGE.—Tropical Zone: the species, Bolivia to Panama; the race, north of the Amazon and east of the Andes. Absent from western Ecuador. (Fig. 5, p. 48.)

(4446) *Ostinops viridis* (P. L. S. Mull)

Oriolus viridis P. L. S. MÜLL., Syst. Nat. Suppl., 1776, p. 87 ("Cajenne").

Ostinops viridis, SCL., Cat. Bds. B. M., XI, 1886, p. 317 (Sarayacu).

Below San José, 1 ♂.

RANGE.—Cayenne to the upper Amazon.

(4449) *Ostinops alfredi alfredi* (Des Murs)

Cassicus alfredi DES MURS, Voy. Casteln. Ois., 1855, p. 67, pl. xix, fig. 2 (Santa Ana, Peru).

Ostinops alfredi, B. & T., 1885, p. 85 (Mapoto); S. & F., 1899a, p. 29 (Valle del Rio Santiago; Valle del Zamora; Cuchipamba); L. & R., 1922, p. 87 ("near Gualea"—error).

Zamora, 1 ♂.

RANGE.—Subtropical Zone: the species, Bolivia to western Venezuela; the race, eastern Peru and eastern Ecuador.

Agrees with Peruvian examples.

(4450) *Ostinops alfredi atrocastaneus* Cab.

Ostinops atrocastaneus CAB., J. f. O., 1873, p. 309 (Ecuador); B. & T., 1884, p. 294 (Pedregal); S. & F., 1899a, p. 28 (La Concepcion; Gualea; Intac); MEN., 1911, p. 107 (Gualea; Tandapi).

Ostinops atrovirens, SCL., 1859a, p. 140 (Pallatanga); 1860c, p. 88 (Nanegal).

Ostinops alfredi, HART., 1898, p. 485 (Chimbo); GOODF., 1901, p. 477 (Milligalli; San Nicolas; Gualea).

Junction of Chanchan and Chiguancay (Rhoads).

'Gualea,' 3; Mindo, 2 ♂, 1 ♀; El Chiral, 1 ♂, 3 ♀; Zaruma, 4 ♂, 1 ♀; Las Piñas, 2 ♂, 7 ♀; Salvias, 1 ♂.

RANGE.—Subtropical Zone; western Ecuador.

The differences between this form and *salmoni* of western Colombia are so nearly bridged by individual variation that I have no doubt of their intergradation. The East Andean representative is obviously *alfredi*, and although we have no specimens demonstrating the intergradation of eastern with western forms, they are so nearly alike that I have no hesitation in accepting Dr. Hellmayr's treatment of them as subspecifically related.¹

(4453) *Ostinops angustifrons* (Spix)

Cassicus angustifrons SPIX, Av. Bras., I, 1824, p. 66, pl. lxii ("In confinibus fl. Amazonum").

Ostinops angustifrons, GOODF., 1901, p. 476 (Rio Coca); L. & R., 1922, p. 87 (Baeza).

Macas region, 1 ♂, 1 ♀; Rio Suno, 4 ♂, 2 ♀; Baeza, 1 ♂, 3 ♀; below Oyacachi, 2 ♂, 2 ♀.

RANGE.—Upper Amazon; eastern Peru to eastern Colombia.

Evidently ranges from the Tropical, upward to the Subtropical Zone.

¹ Nov. Zool., 1914, p. 162.

(4454) *Cacicus cela* (Linn.)

Oriolus cela LINN., Syst. Nat., I, 1758, p. 191 (Guiana).

Cacicus persicus, SCL., 1854, p. 114 (Quijos).

Cassicus persicus, ALLEN, 1889, p. 72 (Napo); GOODF., 1901, p. 477 (upper Napo).

Cacicus icteronotus, SCL., 1858b, p. 455 (Gualaquiza).

Cacicus cela, MEN., 1911, p. 107 (upper Napo); L. & R., 1922, p. 87 (Baeza).

Below San José, 4♂, 3♀; Rio Suno, 6♂, 3♀.

RANGE.—Tropical Zone of Trans-Andea west on the Caribbean coast to the Santa Marta group.

Represented in western Ecuador by *C. flavicrissus* and apparently in the humid Temperate Zone by *Archiplanus leucorhamphus*.

(4455) *Cacicus flavicrissus* (Scl.)

Cassiculus flavicrissus SCL., P. Z. S., 1860, p. 276 (Babahoyo, Ec.).

Cassicus flavicrissus, TACZ., 1877, p. 322 (Tumbez); B. & T., 1883, p. 552 (Yaguachi); 1885, p. 86 (Yaguachi); S. & F., 1899a, p. 29 (Playas; Vinces).

Esmeraldas, 1♂, 4♀; Chone, 6♀; Bahia de Caraques, 2♂, 1♀; Daule, 2♀; Guayaquil, 1♂; Duran, 1♂; Santa Rosa, 1♀.

RANGE.—Tropical Zone; western Ecuador.

Presumably a representative of *C. cela* from which it differs in its smaller size, more slender, darker, straighter bill, slightly deeper tone of the yellow areas, and less yellow in the tail. The geographic intermediate is *C. vitellinus* of Colombia and Panama, which agrees with *cela* in size and bill characters but has the yellow areas even deeper in tone and the wing-patch more restricted in area than in *flavicrissus*. No specimens of this group are known from between Esmeraldas, Ecuador, and the lower Atrato, and the exact relations of *flavicrissus* and *vitellinus* remain to be proven. The range of the latter closely approaches that of *cela* in the Santa Marta region¹ but with no evidence of intergradation.

(4460a) *Cacicus hæmorrhous affinis* Swains.

[*Cassicus*] *affinis* SWAINS., Bds. Brazil, Part I, 1841, pl. 2 (no locality); SCL., Cat. Bds. B. M., XI, p. 325 (Sarayacu).

RANGE.—The species, southeastern Brazil and the Guianas to upper Amazonia.

We have specimens from southeastern Colombia but none from Ecuador.

¹ Todd and Carriker, Ann. Carn. Mus., XIV, 1922, p. 480.

(4463) *Cacicus uropygialis uropygialis* Lafr.

Cassicus uropygialis LAFR., Rev. Zoöl., 1843, p. 290 (Colombia = 'Bogotá'); B. & T., 1885, p. 86 (Machay; Mapoto, Ec.).

Cacicus uropygialis, L. & R., 1922, p. 87 (Baeza).

Below Oyacachi, 2♂; Baeza, 4♂, 5♀; lower Sumaco, 2♂, 1♀.

RANGE.—The species, Colombia and Ecuador; the race, Subtropical Zone; eastern Colombia and eastern Ecuador.

A zonal representative of *C. hæmorrhous*.

(4463a) *Cacicus uropygialis pacificus* Chapm.

Cacicus uropygialis pacificus CHAPM., Bull. A. M. N. H., XXXIV, 1915, p. 655 (Alto Bonito, Col.).

Cassicus uropygialis, B. & T., 1883, p. 552 (Chimbo); HART., 1898, p. 486 (Cachaví; Chimbo); S. & F., 1899a, p. 29 (San José).

Cacicus uropygialis, MEN., 1911, p. 108 (Santo Domingo).

Esmeraldas, 4♂, 2♀; La Chonta, 1♂.

RANGE.—Tropical Zone, western Colombia and western Ecuador.

It is noteworthy that while true *uropygialis* inhabits the subtropics this race of it lives in the tropics.

(4458) *Archiplanus leucorhamphus* (Bonap.)

Xanthornus leucorhamphus BONAP., Att. Sc. Ital., 1843, p. 404 (Bogotá).

Cassiculus leucorhamphus, SCL., 1858c, p. 552 (Matos).

Cassicus leucorhamphus, B. & T., 1885, p. 86 (San Rafael); S. & F., 1899a, p. 29 (Pun); GOODF., 1901, p. 478 (just two days' walk below Baeza).

Cacicus leucorhamphus, MEN., 1911, p. 108 (Oyacachi); L. & R., 1922, p. 87 (Baeza).

Above Loja, 1♀; upper Sumaco, 3♂, 6♀; above Baeza, 8♂, 4♀; below Pallacta, 1♂.

RANGE.—Humid Temperate Zone; East and Central Andes of Colombia, eastern Ecuador to central Peru.

A series from Rumicruz, east-central Peru, shows no approach toward *C. chrysonotus* of southeastern Peru and southward.

(4483) *Archiplanus sclateri* (Du Bus)

Agelaius sclateri DU BUS, Bull. Mus. Belg., 1887, p. 1, pl. i (Ecuador).

Rio Suno, 2♂; below San José, 1♂.

RANGE.—Known only from the Tropical Zone of eastern Ecuador.

The relationships of this species have been discussed by W. DeW. Miller ('The Auk,' 1924, p. 463).

(4464) *Amblycercus solitarius* (Vieill.)

Cassicus solitarius VIEILL., Nouv. Dict. d'Hist. Nat., V, 1816, p. 364 (Brazil).

Rio Suno, 1 ♂, 1 ♀; below San José, 1 ♂, 3 ♀.

RANGE.—Tropical Zone; Colombia to Argentina.

These birds resemble Brazilian specimens.

(4465a) *Amblycercus holosericeus flavirostris* Chapm.

Amblycercus holosericeus flavirostris CHAPM., Bull. A. M. N. H., XXXIV, 1915, p. 659 (Barbacoas).

Cassiculus prevosti, SCL., 1860d, p. 276 (Babahoyo); 1860e, p. 293 (Esmeraldas).

Cassicus prevosti, TACZ., 1877, p. 322 (Tumbez); B. & T., 1883, p. 552 (Chimbo).

Amblycercus prevosti, S. & F., 1899a, p. 29 (Rio Peripa).

Amblycercus holosericeus, HART., 1898, p. 486 (Chimbo; Cachaví).

Bucay (Rhoads).

Esmeraldas, 1 ♂, 2 ♀; Guayaquil, 1 ♂; Bucay, 1 ♂; Chimbo, 1 ♀; Naranjo, 1 ♂, 2 ♀; Rio Jubones, 1 ♂; Santa Rosa, 1 ♂, 1 ♀; Guainche, 2 ♀; Alamor, 2 ♂, 1 ♀; Cebollal, 1 ♂.

RANGE.—The species, Bolivia to Mexico; the race, Tropical Zone, western Ecuador and western Colombia.

Intergradation with *A. h. australis* is indicated by measurements of specimens from altitudes above 3,000 feet in southwestern Ecuador. Several of these have the tail slightly longer than the wing, whereas in typical *flavirostris* the reverse occurs. The bill, however, agrees in color with that of *flavirostris*.

	Measurements	Wing mm.	Tail mm.
Guayaquil, Ec.	♂	96	92
Bucay, Ec.	♂	96	88
Rio Jubones, Ec.	♂	96	85
Santa Rosa, Ec.	♂	99	87
Alamor, Ec.	♂	92	90
Alamor, Ec.	♂	90	91
Cebollal, Ec.	♂	96	98

(4465b) *Amblycercus holosericeus australis* Chapm.

Amblycercus holosericeus australis CHAPM., Bull. A. M. N. H., XLI, 1919, p. 333 (Incachaca, Bol.).

Cassicus prevosti, B. & T., 1885, p. 86 (Baños).

Amblycercus holosericeus, GOODF., 1901, p. 478 (foot East Andes; upper Rio Napo; Rio Coca).

RANGE.—Subtropical to Temperate Zone, Bolivia to Venezuela; eastern Ecuador.

All our specimens from eastern Ecuador are females and, as the accompanying measurements show, two of them agree in size with specimens of *flavirostris* from western Ecuador. The bill, however, is slightly greener and slenderer, and I follow Todd¹ in referring these north Andean specimens to the race described from Bolivia.

Measurements

		Wing mm.	Tail mm.
Esmeraldas, W. Ec.	♀	92.5	85
Chimbo, W. Ec.	♀	91	87
Naranjo, W. Ec.	♀	91	87
Naranjo, W. Ec.	♀	83	82
Santa Rosa, W. Ec.	♀	88	83
Santa Rosa, W. Ec.	♀	87.5	86
Upper Sumaco, E. Ec.	♀	91	87
Above Baeza, E. Ec.	♀	94	99
Above Baeza, E. Ec.	♀	91	88

(4466) *Cassidix oryzivora oryzivora* (Gmel.)

Oriolus oryzivorus GMEL., Syst. Nat., 1, 1788, p. 386 (Cayenne).

Cassidix oryzivora violea BANGS, Proc. N. E. Zool. Club, II, 1900, p. 11 (La Concepcion, Santa Marta, Col.).

Cassidix oryzivora, SCL., 1859a, p. 140 (Pallatanga); HART., 1898, p. 485 (Paramba; Chimbo); S. & F., 1899a, p. 30 (Rio Peripa; Rio Daule); GOODF., 1901, p. 479 (Santo Domingo; San Nicolas); MEN., 1911, p. 108 (Santo Domingo; Pachijal).

Cassidix ater, TACZ., 1877, p. 323 (Lechugal).

Cassidix violea, L. & R., 1922, p. 87 (Canchacoto; near Mindo; road to Nanegal). Junction Chanchan and Chiguancay (Rhoads).

Daule, 1 ♀; El Chiral, 1 ♂ ad.; Alamor, 1 ♀; Zamora, 1 ♀; below San José, 1 ♀; 'Napo,' 2 ♂.

RANGE.—Tropical Zone; southern Brazil to Mexico.

Neither Mr. Todd² nor myself³ have been able to find satisfactory grounds for the separation of *violea* Bangs, and I see no reason for a further effort to recognize two races of this bird in South America.

The El Chiral male listed above is essentially a duplicate of one from Suapure on the lower Orinoco, and the two Napo males can be matched by specimens from the interior of Colombia.

¹ Proc. Biol. Soc. Wash., XXXVII, 1924, p. 113.

² Ann. Carn. Mus., XIV, 1922, p. 478.

³ Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 630.

(4468) ***Dolichonyx oryzivorus* (Linn.)***Fringilla oryzivora* LINN., Syst. Nat., I, 1758, p. 179 (Cuba).*Dolichonyx oryzivorus*, SCL., 1858a, p. 72 (Napo).

RANGE.—Breeds in Temperate North America, chiefly east of the Rocky Mountains; winters in southern Brazil, northern Argentina and Paraguay.

We have no Ecuadorean specimens. The species doubtless migrates through western as well as eastern Ecuador, since we have four specimens taken at Trujillo, Peru, April 4.

(4470) ***Molothrus bonariensis* subsp.***Tanagra bonariensis* GMEL., Syst. Nat., I, 1789, p. 898 (Buenos Aires).

Rio Sumo, 1 ♂.

RANGE.—Tropical Zone: the species, Argentina to Venezuela.

This specimen agrees with a topotype of *bonariensis*, but females are needed to determine the status of the eastern Ecuadorean form.

(4470a) ***Molothrus bonariensis æquatorialis* Chapm.***Molothrus bonariensis æquatorialis* CHAPM., Bull. A. M. N. H., XXXIV, 1915, p. 661 (Barbacoas, Col.).*Molothrus purpurascens*, B. & T., 1885, p. 86 (Yaguachi).

Esmeraldas, 3 ♂, 5 ♀; Chone, 3 ♂; Manta, 1 ♂; Daule, 1 ♀; Puná Is., 1 juv.

RANGE.—Tropical Zone; coastal region of western Ecuador and southwestern Colombia.

Males average more violet above than those of *occidentalis*; the females are much darker, and there appears to be a constant difference in size between the two, as the appended measurements show:

		Wing mm.	Tail mm.	Culmen mm.
<i>M. b. æquatorialis</i>	 3 ♂	121-122	91-94	20.5-21
<i>M. b. occidentalis</i>	 4 ♂	112-118	79-83	19.5-20

(4472) ***Molothrus bonariensis occidentalis* Berl. & Stolz.***Molothrus occidentalis* BERL. & STOLZ., P. Z. S., 1892, p. 378 (Lima, Peru).

Casanga Valley, 8 ♂, 1 ♀.

RANGE.—Tropical Zone; western Peru and southwestern Ecuador.

These specimens agree with a series from the coast of Peru.

(4496) *Trupialis bellicosa* (*De Filippi*)

Sturnella bellicosa DE FILIPPI, Cat. Mus. Mediol., 1847, p. 32 (Peru); SCL., 1858b, p. 455 (Cuenca); 1858c, p. 552 (Matos; Riobamba); 1860d, p. 277 (Babahoyo); B. & T., 1883, p. 552 (Guayaquil); 1885, p. 86 (Riobamba); GOODF., 1901, p. 479 (Chimborazo, 8,000 ft.).

Trupialis loyca, TACZ., 1877, p. 323 (Tumbez).

Trupialis bellicosa, S. & F., 1899a, p. 29 (Sigsig; San Miguel de Chimbo; Balzar; Puntilla di Santa Elena).

Huigra; Chunchi; Riobamba; above Chambo (Rhoads).

Esmeraldas, 1♂; Chone, 7♂, 3♀; Manta, 1♂; Bahia de Caraques, 4♂, 2♀; La Plata Is., 4♂, 1♀; Guayaquil, 1♂; Duran, 2♀; Puná Is., 1♂, 2♀; Santa Rosa, 5♂, 2♀; El Paso, 2♂, 1♀; Loja, 3♂.

RANGE.—Coasts of Peru and Ecuador, ranging upward to the Temperate Zone.

Specimens from the coastal region are slightly smaller and have the red area somewhat smaller than in those from the tableland. The latter seem nearer examples from Peru. Although this species apparently represents *T. militaris* of Chile, specimens from Moquegua on the Chilean border of Peru show no approach in tail measurements to *T. militaris* from near Coquimbo.

(4500) *Gymnomystax mexicanus* (*Linn.*)

Oriolus mexicanus LINN., Syst. Nat., I, 1766, p. 162 (Mexico = Cayenne).

Gymnomystax mexicanus, SCL., 1855, p. 284 (Quijos).

Gymnomystax melanicterus, GOODF., 1901, p. 479 (Rio Coca).

RANGE.—Tropical Zone; Cayenne to eastern Ecuador and Peru.

We have no specimens from Ecuador.

(4501a) *Icterus xantholaema* *Lletget*

Icterus xantholaema LLETGET, Bol. Real. Soc. Esp., 18, 1918, p. 340 ('Ecuador').

This species, based on a single specimen from "Ecuador," is unknown to me, nor do the proportions of the type (wing 104 mm., tail 70 mm.) agree with those of any other recognized species of the genus.

(4508) *Icterus grace-annae* *Cass.*

Icterus grace-annae CASS., Proc. Acad. Nat. Sci. Phila., 1867, p. 51 (Peru); TACZ., 1877, p. 323 (Tumbez).

Manta, 1♂; Santa Elena, 1♂, 1♀; Puná Is., 1♂; Casanga, 3♂. Peru: Chilaco, 1♀; Lamer, 1♂.

RANGE.—Tropical Zone; northwestern Peru and western Ecuador.

(4510) *Icterus mesomelas taczanowskii* Ridgw.

Icterus mesomelas taczanowskii RIDGW., Proc. Wash. Acad. Sci., III, 1901, p. 153 (Guayaquil, Ec.).

Icterus mesomelas, SCL., 1860d, p. 277 (Babahoyo); 1860e, p. 293 (Esmeraldas); TACZ., 1877, p. 323 (Tumbez); B. & T., 1883, p. 552 (Chimbo); S. & F., 1899a, p. 29 (Babahoyo; Vinces).

Esmeraldas, 5♂, 2♀; Chone, 2♂, 3♀; Chongoncito, 1♂; Duran, 3♀; Bucay, 1♂; Rio Jubones, 1♂; Santa Rosa, 5♂, 4♀; Portovelo, 2♂, 1♀; Punta Santa Ana, 1♀; Casanga, 1♂; Rio Pindo, 1♀; Lunamá, 1♂, 1♀; Guainche, 3♂, 2♀; Alamor, 1♂; Cebollal, 2♂.

RANGE.—Tropical Zone: the species, northern Peru to Mexico; the race, northern Peru and western Ecuador.

We have a large series from northern Peru, including the Rio Chinchi, where its presence in connection with its apparent absence from eastern Ecuador indicates its northern origin through western Ecuador.

(4512) *Icterus chryscephalus* (Linn.)

Oriolus chryscephalus LINN., Syst. Nat., I, 1766, p. 164 ("America" = Guiana).

Icterus chryscephalus, SCL., Cat. Bds. B. M., XI, 1886, p. 369 (Sarayacu).

Rio Suno, 1♂, 1♀; below San José, 1♂.

RANGE.—Guianas to upper Amazonia.

Agrees with a Guianan specimen but has a more slender bill.

(4522) *Icterus croconotus* (Wagl.)

Psarocolius croconotus WAGL., Isis, 1829, p. 757 (Guiana).

Icterus croconotus, ALLEN, 1889, p. 72 (Napo); GOODF., 1901, p. 478 (Suno, upper Rio Napo; Rio Coca).

Rio Suno, 1♂, 1♀; below San José, 1♂, 1♀.

RANGE.—Tropical Zone; Guiana to upper Amazonia.

I have seen no Guianan specimens.

(4526) *Dives warscewiczii* (Cab.)

Lamprosarus warscewiczii CAB., J. f. O., 1861, p. 83 (Peru); B. & T., 1885, p. 86 (Yaguachi).

Dives warscewiczii, S. & F., 1899a, p. 30 (Balzar; Playas).

Aphobus chopi, TACZ., 1877, pp. 323, 750 (Tumbez; see Orn. Pér., II, p. 433).

Chone, 1♀; Chongoncito, 2♂, 1♀; Guayaquil, 1♂; Daule, 1♀; Santa Rosa, 5♀; Lunamá, 1♂, 1♀; Casanga, 1♂; Alamor, 1♂; Loja, 2♂.

RANGE.—Arid Tropical Zone of western Ecuador and northwestern Peru.

Ecuadorean specimens are smaller than those from central western Peru, indicating that the latter are varying toward *D. kalinowskii*.

The genus *Dives* has not been recorded from the region between Nicaragua and Ecuador, suggesting the distribution of *Melopelia*.

	Measurements	Wing mm.	Tail mm.	Culmen mm.
Guayaquil, Ec.	♂	108	86	25
Santa Rosa, Ec.	♂	109	92	25
Guainche, Ec.	♂	110	87	26
Guainche, Ec.	♂	115	96	27
Casanga, Ec.	♂	115	99	27
Trujillo, Peru	♂	125	99	28.5
Trujillo, Peru	♂	121	101	27
Chone, Ec.	♀	108	85	24
Santa Rosa, Ec.	♀	101	85	25.5
Santa Rosa, Ec.	♀	103	86	25
Trujillo, Peru	♀	110	94	26.5
Trujillo, Peru	♀	110	88	26.5
Ica, ¹ Peru	♂	146	132	34

(4528) **Megaquiscalus major assimilis** (Scl.)

Quiscalus assimilis SCL., Cat. Am. Bds., 1862, p. 141 ("Bogotá" = coast northern Colombia); TACZ., 1877, pp. 323, 751 (Santa Luzia; Rio Tumbez).

Esmeraldas, 1 ♂, 1 ♀; Manaví, 3 ♂, 2 ♀; Jambeli Is., 1 ♂, 3 ♀.

RANGE.—The species, Peru to Virginia, chiefly coastal; the race, northwestern Peru, coasts of Peru and Colombia and north to western Nicaragua.

Ecuadorean specimens agree with others from northern Colombia. I have already commented on the status of this race (Bull. Amer. Mus. Nat. Hist., XXXVI, 1917, p. 635).

FAMILY CORVIDÆ. CROWS AND JAYS

(4543) **Cyanocorax mystacalis** (Geoff.)

Pica mystacalis GEOFF., Mag. Zoöl., 1835, pl. xxxiv (Guayaquil).

Cyanocorax mystacalis TACZ., 1877, p. 323 (Tumbez); S. & F., 1899a, p. 30 (Vinces).

Daule, 6 ♂, 2 ♀; Chongoncito, 2 ♂, 1 ♀; Santa Rosa, 3 ♂, 3 ♀; Zaruma, 1 ♂; Casanga, 4 ♂, 4 ♀. Peru: Milagros, Samate, Chilaco, Sullana, Palambra, 19.

RANGE.—Equatorial Arid Fauna of the Pacific coast region of southwestern Ecuador and northwestern Peru.

This very distinct form is apparently restricted to the Pacific coast. Its nearest known relative is *C. cyanopogon* of eastern Brazil.

¹ *D. kalinowskii* ex Berl. & Stolz., P. Z. S., 1892, p. 379.

(4547) *Cyanocorax violaceus* Du Bus

Cyanocorax violaceus DU BUS, Bull. Acad. Brux., XIV, pt. 2, 1847, p. 103 (Peru); SCL., 1858a, p. 72 (Napo); 1858b, p. 456 (Gualaquiza; Zamora); S. & F., 1899a, p. 30 (Valle del Zamora); GOODF., 1901, p. 480 (Rio Suno, upper Napo).

Rio Zamora, 1 ♂, 1 ♀; below San José, 6 ♀; Rio Suno, 4 ♂, 2 ♀.

RANGE.—Tropical Zone; southeastern Peru to Colombia and Guianas.

These specimens average somewhat bluer than a small series from southeastern Peru. Represented in Bolivia by *C. chilensis* and in Paraguay and northern Argentina by *C. cyanomelas*.

(4549) *Xanthoura yncas yncas* (Bodd.)

Corvus yncas BODD., Tabl. Pl. Enl., 1783, p. 38 (Peru).

Cyanocorax yncas, SCL., 1854, p. 114 (Quijos); 1858a, p. 72 (Napo); B. & T., 1885, p. 86 (Machay).

Xanthura yncas, S. & F., 1899a, p. 31 (San José); L. & R., 1922, p. 87 (Baeza).

Xanthura incas, GOODF., 1901, p. 480 (Baeza).

Sabanilla, 1 ♂, 2 ♀; Baeza, 5 ♂, 2 ♀; below Baeza, 2 ♂, 5 ♀; lower Sumaco, 3 ♂; below Oyacachi, 2 ♂, 5 ♀; Macas region, 8.

RANGE.—Subtropical Zone: the species, Bolivia to Venezuela; the race, Bolivia to eastern Ecuador.

Ecuadorean birds are smaller and have the frontal feathers somewhat longer than in those from Peru, and thus approach *galeata* Ridgw. of Colombia. The latter is found in the West Andes of Colombia near Popayan but the species is unknown in western Ecuador.

(4553) *Cyanolyca pulchra* Lawr.

Cyanolyca pulchra LAWR., Ann. Lyc. Nat. Hist. N. Y., XI, 1875, p. 163 (Quito, Ec.); TACZ. & BERL., P. Z. S., 1885, p. 116 (Quito).

"Quito," 1 (type); Ecuador, 1.

RANGE.—Northern Ecuador.

A distinct species with no near relatives.

(4556) *Cyanolyca turcosa* Bonap.

Cyanolyca turcosa BONAP., Compt. Rend., XXXVII, 1853, p. 830 (Colombia); S. & F., 1899a, p. 30 (Huaca; La Concepcion; Papallacta; Cañar); MEN., 1911, p. 109 (Frutillas); L. & R., 1922, p. 87 (below Nono; Piganta).

Cyanocitta turcosa, SCL., 1858c, p. 552 (Matos); 1860c, p. 88 (above Puellarro; Chillo Valley); B. & T., 1884, p. 294 (La Union); 1885, p. 86 (San Rafael).

Xanthura turcosa, GOODF., 1901, p. 480 (w. Pichincha; Mindo; Nanegal; Papallacta).

Chunchi; Pagma Forest (Rhoads).

Taraguacocha, 3♂, 2♀; El Paso, 1♀; Loja, 3♂, 3♀; upper Sumaco, 4♂, 4♀; above Baeza, 7♂, 5♀. Peru: El Tambo.

RANGE.—Humid Temperate Zone; northern Peru to Colombia.

(4560) *Cyanolyca angelæ* Salvad. & Festa

Cyanolyca angelæ SALVAD. & FESTA, Boll. Mus. Tor., XV, 1899, No. 357, p. 30 (Pun, Ec.).

RANGE.—Known only from the male type and a female from the type-locality in the humid Temperate Zone.

I have not seen this species. It appears to be allied to *C. armillata quindiuna*.

APPENDIX

GAZETTEER OF ECUADOREAN COLLECTING STATIONS

The following alphabetical list of Ecuadorean collecting stations contains brief information in regard to their location, general character, and ornithological history.

The hyphenated capital letter and number refer to the folding map of Ecuador (Plate XXX). The number following the abbreviation "No." refers to the map of the American Museum's collecting localities (Plate III, facing p. 14).

ALAMOR (F-3. No. 44. Alt. 4,550 ft.).—A small town lying along a ridge between the Rios Tumbez and Alamor. Heavy subtropical forest lies west and north of Alamor and humid tropics may be quickly reached in the valleys below.—H. E. A.

ALAUSSI, PROV. CHIMBORAZO (E-4. Alt. 7,827 ft.).—Headquarters of the canton of that name, situated at the side of a valley, unwooded, at the foot of Azuagu, and on the bank of a river bearing this same name, tributary to the River Chanchan, of the Rio de Chimbo drainage.

Stolzmann and Siemiradski, 4 species (B. & T., 1884).

ALOAG, PROV. PICHINCHA (C-4. Alt. 9,570 ft., Rivet; 7,800 ft., Goodfellow).—A pueblo about 20 miles south-southwest of Quito at which Goodfellow (1901-2) and Hamilton collected and from which Simon (1907) records species secured by Dr. Rivet.

ALONGUINCHE, PROV. PICHINCHA (B-4).—A native collecting station on the southerly slopes of the Mojanda Mts. at the junction of the Subtropical and Temperate Zones.

ALPACHACA, PROV. CHIMBORAZO (E-3. Alt. 10,000 ft.).—The end of forest and beginning of the Puna; the temperature falls at night to 6° Cent.; often it snows. A profusion of Hummingbirds (*Diphogaena*, *Lesbia*, *Colibri*, and others) hover in the shrubbery and perennial flowers. Visited by Stolzmann and Siemiradski (B. & T., 1884).

AMBATO (D-4. Alt. 8,540 ft.).—A town in a warm valley of the interandine tableland. A small collection of native-made skins purchased by the American Museum from a commission merchant in New York City as from "Ambato," proved to be from the eastern slope of the Andes.

ANTISANA, MT. (C-4. Alt. 18,884 ft.).—A mountain in the East Andes which, with its lake, is visited by native collectors.

ARCHIDONA (C-5. Alt. "Foot of the Eastern Andes").—An Indian village in the forests of the Upper Napo at which Goodfellow (1901-2) and Hamilton collected in April, 1899. Doubtless many 'Napo' skins have come from this locality.

ASANCOTO (D-3. Alt. 8,125 ft.).—A locality on the Pacific slope near the headwaters of the Rio Chimbo from which Simon (1907) records specimens.

ATACAZO (C-4. Alt. 15,000 ft.).—A mountain 10 miles southwest of Quito from which Simon (1907) records birds secured by Dr. Rivet.

ATAHUALPA, PROV. PICHINCHA (B-4. Alt. 8,500 ft.).—A native collecting station on the western slope of the Mojanda Mts.

BABAHYO (D-3. Alt. 15 ft.).—A tide-water town in the humid Tropical Zone about 40 miles northeast of Guayaquil on the Rio Bodegas, a branch of the Guayas. Formerly the port at which the mule journey to Quito began.

Fraser's collection of 395 skins, representing 134 species, made here from July 10 to September, 1859, is apparently the first one to have been made on the lowlands of western Ecuador, and it consequently contained the first known examples of many common species characteristic of that region.

Comparing the avifauna of Babahoyo, in the Tropical Zone, with that of Pallatanga 35 miles to the east, in the Subtropical Zone, at an elevation of 4,950 feet, it is found that of the respectively 134 and 154 species found at these two localities only 20 are common to both.

BAEZA, PROV. DEL ORIENTE (C-5. No. 77. Alt. 5,000 ft., Goodfellow; 6,222 ft., Rivet).—A pueblo of a few huts in the eastern Subtropical Zone, three days' walk below Papallacta, on the Napo trail. Goodfellow and Hamilton collected here in March, 1899; Simon (1907) records specimens from this locality secured by Dr. Rivet. They were doubtless taken by native collectors with whom Baeza is a favorite locality as the most accessible place from Quito in the eastern subtropics. The Olallas have sent us 447 birds from Baeza.

BALZAR (D-3. Alt. 325 ft.).—A town on the Rio Daule in the humid Tropical Zone of the Pacific coast, at which Illingworth collected, which was visited by Festa, and from which Dr. Rivet secured several specimens (Simon, 1907). Often referred to by the earlier writers as the "Montaña" or forest of Balzar, a term which has at times been erroneously interpreted as "Mt. Balzar" or "Balzar Mts."

BAHIA DE CARAQUES (C-2. No. 9. Sea-level).—A town in the Equatorial Arid Fauna. "Leaving Bahia this fertile but semi-arid region extends eastward about 20 miles or until the hills or Santos range of about 200 meters altitude is reached. Here the heavy forest commences and cultivation ceases."—Richardson.

BESTION (F-3. No. 89. Alt. 10,100 ft.).—A camp on the open grassy paramo along the Rio Shingata. This is a region of rolling meadows and scattered stands of twisted temperate forest. The faunal elements range from the humid temperate to the paramo, and the collecting range was about 10,000 to 11,000 feet.—H. E. A.

BUCAI (E-3. No. 21. Alt. 1,000 ft.).—A station on the Guayaquil and Quito R. R. at the foot of the West Andes in the humid Tropical Zone. Much of the first-growth forest has been felled. Collections have been made here by Rhoads, Gill, and our expedition of 1922.

BUGNAC, PROV. CHIMBORAZO (E-4. Alt. 9,265 ft.).—"In the hot valley of the River Chanchan, on the route between Alausi and Chunchi. Country of the Quechua type, similar to that of Callacate in Peru. Here abounds *Tanagra darwini*." Stolzmann and Siemiradski, 12 species (B. & T., 1884).

BULÚN.—A locality of the Tropical Zone, northwestern Ecuador, from which Hartert (1902) records specimens. Apparently the same as Pulún and Bulúm.

CACHAVÍ, PROV. ESMERALDAS (B-4. Alt. about 500 ft.).—A village in the midst of large forests in a low country on the upper Rio Cachaví. It is inhabited by negroes and contains not more than four or five houses. The Rio Cachaví is navigable only for small canoes, it being extremely swift and with numerous rapids. At times it is so dry that in places canoes have to be dragged along the banks for long distances; at others it is so flooded that navigation is impossible. A forest path leads to Lita and Paramba and is the only means of communication with the interior, the intervening country being uninhabited (Rosenberg). The collector quoted above secured 77 species at Cachaví in the winter of 1896, among them some exceptionally interesting new forms. The region evidently possesses a rich humid Tropical Zone fauna of which not one-half the existing species have been recorded (Hartert, 1898, 1902). (Spelled also Cachabí).

CALACALI (C-4. Alt. 9,100 ft.).—A pueblo about 12 miles north of Quito where in March, 1859, Fraser secured species chiefly representative of the humid Temperate Zone, but including also some of the Paramo Zone (Sclater, 1860c).

CANELOS (D-5. Alt. 1,800 ft.).—A locality on the Rio Bobonaza, in the Tropical Zone. (Pl. XIV, fig. 1.)

CARABURO, PROV. PICHINCHA (C-4. Alt. 7,500 ft.).—A native collecting station in the arid Temperate Zone of the Tumbaco Valley.

CARAPUNGO, PROV. PICHINCHA (Alt. 8,600 ft.).—A locality in the arid Temperate Zone above Zambiza some 10 miles northeast of Quito.

CARONDELED (A-4).—This is, presumably, the locality referred to by Hartert (1902) as "Carondelet" but which Wolf spells as above.

CAYAMBE, PROV. PICHINCHA (B-4. Alt. 9,340 ft.).—A town of some 3,000 inhabitants at the foot of Mt. Cayambe, about one and a half day's ride northeast of Quito. Birds and insects are comparatively scarce, especially in the cultivated parts of the surrounding districts, but the former became more abundant on the foothills of the great mountain of Cayambe (Rosenberg). In the vicinity of Cayambe and on the mountain slopes, Rosenberg secured 35 species. Those from the lower elevations belong to the fauna of the arid Temperate Zone but from 12,000 feet and upward only Paramo Zone species were taken.

CAYANDELED, PROV. CHIMBORAZO (E-4. Alt. 4,500 ft.).—Humid forest; temperature moderate, dropping at night to 12° Cent. Vegetation different from that of Chimbo; the lianas almost entirely absent; on the other hand, little tufts of shrubbery begin in the forest, the trees are not so high, flowering plants replace the palms, the nectandras and figs predominate. Characteristic birds are: *Cyananthus cyanurus*, *Chamaepetes goudoti*, many *Callistes*, the highest range of the country for *Myiobatrachus stellatus*, *Cephalopterus penduliger*, and *Ramphocelus icteronotus*; lowest of *Scytalopus magellanicus*, *Veniliornis fumigatus*, and true *Buarremon* (Stolzmann).

Stolzmann and Siemiradski secured 101 species at this locality, most of them characteristic of the Subtropical Zone (B. & T., 1884).

The excursions taken by them from this point covered great vertical distances: below as far as the farms of Surupata (3,700 ft.), El Placer (2,600 ft.), and Pedregal (2,600 ft.); higher up, to Charguarpata (5,800 ft.) and Tribulpata (7,000 ft.), both uninhabited localities in mountain forest.

- CAYAPAS (B-3 and 4).—A locality and river in the Tropical Zone of northwestern Ecuador whence Hartert (1902) records specimens.
- CEBOLLAL (No. 48. Alt. 3,100 ft.).—A station west of Alamor (F-3) rather densely forested and uncultivated. Scene of Cherrie's misfortune. Gill secured 150 specimens here from Sept. 21 to Oct. 8.
- CECHCE, PROV. CHIMBORAZO (Alt. 9,600 ft.).—A hacienda between Alpachaca and Alausi (E-4). The country is mountainous, partly forested with clumps of trees and brush. Trips were made up to 10,700 feet where there is pasturage grown with ichu grass (*Stipa ichu*). Stolzmann and Siemiradski (1884) secured 49 species here of the humid and arid Temperate Zone.
- CELICA (G-3. No. 46. Alt. 6,900 ft.).—A small city, very near the Peruvian boundary and on a well-traveled trail from Peru to Ecuador. The region about Celica is, for the most part, bare mountain slopes, arid temperate to arid tropics, but in sheltered ravines some heavy forest occurs and here subtropical conditions are met.—H. E. A.
- CHAMBO (D-4).—A locality in the Temperate Zone at which Rhoads and Lemmon collected from April 10–17, 1911.
- CHANCHAN AND CHIGUANCA (alt. about 2,800 ft.).—A station at the junction of the humid Tropical and Subtropical Zones on the line of the Guayaquil and Quito R. R. between Bucay (E-3) and Huigra, where Rhoads and Lemmon collected. (Pl. XV.)
- CHAGUARPATA, PROV. CHIMBORAZO (alt. 5,800 ft.).—A station in the forest above Cayandede (E-4) at which Stolzmann and Siemiradski (B. & T., 1884) collected 26 species.
- CHAUPICRUZ.—A station of native collectors in the arid Temperate Zone 4 miles north of Quito.
- CHILCO, PROV. PICHINCHA (alt. 8,500 ft.).—A native collecting station on the San Pedro River some 6 miles east of Quito.
- CHILLANES (D-3. Alt. 7,686 ft.).—A station on the summit of the Cordillera de Chimbo, about 8 miles northwest of, but some 2,700 feet above, Pallatanga. Fraser collected here in the latter part of November, 1858, securing some 20 species, of which the greater number are eminently characteristic of the humid Temperate Zone.
- It is possible that their occurrence at this comparatively low altitude is due to the situation of this station on the summit of a range where it is exposed to the climatic influences of the snowfield of Mt. Chimborazo (Sclater, 1860a).
- CHILLO, VALLEY OF (C-4).—A valley formed by the Rio Pito some 8 miles southwest of Quito, with an average elevation of about 8,000 feet. Goodfellow writes (1901) that in going from Quito to the Napo the route "first takes a dip down into the wide and somewhat dry Chillo Valley which connects the eastern and western ranges of the Andes. The valley was also visited by Festa (1909), and Simon (1907) records specimens from it secured by Dr. Rivet.
- CHILLOGALLO (C-4).—A native collecting station in the arid Temperate Zone 3 miles south of Quito.
- CHIMBO, PUENTE DE (E-3. No. 22. Alt. 1,130 ft.).—The railroad station is Bucay. At this point one passes from the alluvial lowlands with their savannas, marshes, cacao plantations, and patches of woods into the mountains clad with virgin

forest. Along the line of the railroad this band of mountain forest is only about 10 miles long, and before reaching Huigra it is succeeded by a semi-arid region.

Stolzmann and Siemiradski collected 166 species in the vicinity of Chimbo. The fauna is mainly tropical, with a striking admixture of savanna and forest-inhabiting species, reflecting the varying characteristics of the place. There are also a surprising number of subtropical forms whose presence is apparently due to a variety of causes. The richness of the forest on the mountain slopes above the town, as compared with that of the plains to the westward, doubtless induced the collectors to work upward rather than downward. Indeed, Stolzmann (P. Z. S., 1885, pp. 67-70), in speaking of species secured at Chimbo, implies that they were taken between 800 and 3,000 feet, but "not exceeding the latter altitude. We, however, secured numbers of subtropical species on the wooded slopes immediately above the Chimbo, and it seems evident that we have here a faunal expression of the comparatively low temperature which prevails in western Ecuador, and to which reference is made more fully elsewhere. Stolzmann and Siemiradski state that the temperature at Chimbo fell to 62° Fahr. nightly.

Even in the heart of the dry season (July 25-Aug. 4), the vegetation here was fresh and green, due, apparently, to the clouds and subsequent garúa of nightly occurrence.

In the summer of 1897, W. F. H. Rosenberg collected 73 species at Chimbo (Hartert, 1898). We have 93 specimens from Chimbo and 204 from Bucay. (Pl. XVI, fig. 1.)

CHIMBORAZO (D-4).—Between June 9 and July 23, 1913, Richardson collected 204 specimens in the Paramo Zone on the southern slopes of Mt. Chimborazo. (Pl. IX, fig. 1; pl. XXIII, fig. 1.)

CHINGUIL (alt. 9,000 ft.).—A native collecting station on the Pacific slope below Lloa (C-4).

CHONE (C-2. No. 7. Alt. 65 ft.).—A town near the western border of the humid Tropical Zone at which Dr. Rivet secured several specimens (Simon, 1907). Richardson collected 347 specimens here in parts of December, 1912, and January and February, 1913.

CHONGONCITO (E-2. No. 15. Sea-level).—A settlement near Chongon and about 15 miles west of Guayaquil in the Equatorial Arid Fauna. Cherrie and Gill collected 129 birds here from July 6-11, 1921. (Pl. XIII, fig. 1.)

CHONGON HILLS (E-2. No. 16).—The southeastern extremity of the Cordillera Colonche, reaching Guayaquil and appearing east of the Guayas as isolated hills. North of Chongon the range (known also as Cordillera de Chongon) has an elevation of about 500 feet and the drainage ravines between the arid shoulders bear a fairly heavy forest growth and possess a humid Tropical Zone fauna. Visited from July 10-13 by our expedition of 1922.

CHOTA, VALLEY OF (B-4. Alt. 5,050 ft.).—A hot, arid valley of the tableland north of Ibarra visited by Festa, Goodfellow, and Hamilton and from which Simon (1907) records specimens secured by Dr. Rivet. In a journey from Pasto, Col., to Quito, in April, 1898, Goodfellow writes "our only dip into warmer regions being the hot valley of the Chota where we found the country all rock and sand, and everything burnt up." (Under *Hylocharis grayi*, Oberh., 1902.) Goodfellow also remarks that the precipitous sides of this valley were "covered

in parts with thorny bushes and acacias which, during our visit, were devoid of all trace of green; and it was a wonder what these birds could possibly find to feed on there."

COCO AND CHIMBO, JUNCTION OF RIOS (No. 23. Alt. 2,425 ft.).—An American Museum camp about 10 miles north of Puente de Chimbo. There is a narrow valley floor from which the mountains rise steeply, all heavily forested. The fauna is a mixture of humid tropical and subtropical. We took 50 specimens here July 27–31, 1922. (Pl. II, fig. 2.)

COLONCHE (E-2. No. 13. Sea-level).—A town in the Equatorial Arid Fauna at which Gill secured specimens of *Speotyto cunicularia punensis*.

COLONCHE, CORDILLERA OF (D-2). A small forested coastal range which, according to Wolf, attains an altitude of about 2,600 feet east of Manglar Alto. Specimens collected by Tate at the summit indicate that the fauna is of the humid Tropical Zone. At its southeastern end this range is known as the Cordillera Chongon.

CORAZON, MT. (C-4. Alt. 15,820 ft.).—A mountain on the western side of the tableland in the southern part of the Province of Pichincha frequented by native collectors.

COTOCALLAO (Alt. 9,200 ft.).—A town about 6 miles north of Quito (C-4) where the road for Mindo leaves the main highway and ascends the northern slopes of Pichincha. The surroundings are similar to those of Quito.

CUENCA (E-3. Alt. 8,400 ft.).—A city in the arid Temperate Zone. Louis Fraser collected here during parts of October and November, 1857, and all of March, April, and May, 1858, securing 27 species (Selater, 1858b).

CUMBAYA, PROV. PICHINCHA (alt. 8,000 ft.).—A Temperate Zone locality east of Quito (C-4) from which Simon (1907) records specimens secured by Dr. Rivet, and from which we have native-made specimens. Rhoads and Lemmon collected here from May 26 to June 2, 1911.

CURARACHA.—A settlement in the mangroves on the northern side of the delta of the Rio Tumbes (F-2). Stolzmann and Jelski collected at this point (Taczanowski, 1877).

DAULE (D-3. No. 17. Near sea-level).—A town in a level, cultivated region on the river of the same name. Richardson secured 145 birds here from April 20–30, 1913.

DURAN, now known as Alfaro (E-3. No. 19. Sea-level).—Terminus of the railroad to Quito on the Guayas opposite Guayaquil. The surroundings and bird-life are essentially similar to those of the environs of Guayaquil. Our expeditions of 1913–16, and 1920 have taken 121 specimens here

EL CHIRAL (F-3. No. 33. Alt. 5,350 ft.).—A small clearing and a lone hut in the heavy subtropical forest well up on the western slope of the western Andes. It lies on the main trail from Santa Rosa to the mines at Portovelo. Rainfall is heavy throughout this region, vegetation is dense, and trails are few. The mountain slopes are steep, and collecting from El Chiral represents a range of from about 4,000 to 6,400 feet elevation. The pass over the range is about 6,400 feet. Numbers of humid Temperate Zone forms occur at this place.—H. E. A. (Pl. VI, fig. 1.)

EL PLACER, CHIMBORAZO (alt. 2,600 ft.).—A farm in the vicinity of Cayandedel (E-4) at which Stolzmann and Siemiradski secured 9 species (B. & T., 1882).

EL ROSARIO.—A locality on the upper slopes of Pichincha (C-4) at which Rhoads and Lemmon collected from April 20 to May 19, 1911.

ESMERALDAS (B-3. No. 1. Sea-level).—The region is in the Colombian-Pacific Fauna of the humid Tropical Zone and is largely forested, but the coast and immediate vicinity of the city is arid and here are found species, like *Pyrocephalus*, which are characteristic of the Equatorial Arid Fauna.

Fraser collected 170 specimens of 93 species here in October to December, 1859 (Sclater, 1860e). Richardson worked here from October 17 to December 6, 1912, and secured 801 specimens from the vicinity of the town and as far up the Esmeraldas as 28 miles.

GUACA (Alt. 9,600 ft.).—A small town west of Pun (B-5) in the Arid Temperate Zone. (See Jardine, 1855.)

GUACHANAMA (F-3. No. 42. Alt. 9,050 ft.).—A small town on the flank of a high, flat-topped mountain at the headwaters of the Rio Alamor. It is well cut off by its elevation from most of the surrounding district, and was one of the base camps of the French in their survey of an arc on the Meridian. Scattered stands of stunted temperate forest are here and there in favored spots, but much of the mountain side is open or covered with tough scrub.—H. E. A.

GUAILLABAMBA (C-4. No. 84. Alt. 7,000–8,000 ft.).—The Guaillabamba Cañon, on the road from Pomasqui through La Providencia to Malchingue, has a depth of from 2,000 to 3,000 feet. Its sides are steep and, except for a few cacti and acacias, largely devoid of vegetation. The town of Guaillabamba, some distance above the La Providencia trail, at an altitude of some 8,276 feet, is also excessively arid.

The Guaillabamba river drains the valley of Quito and with other affluents enters the Pacific as the Esmeraldas. It has evidently afforded the path and provided the climate suitable for the extension of the range of certain arid tropical species from the coast to the tableland. (Pl. X, fig. 2; pl. XIX, fig. 1.)

GUAINCHE (No. 45. Alt. 3,200 ft.).—A station between Alamor (F-3) and Celica, in a broad, well-cultivated valley. Cherrie and Gill Collected 121 birds here August 25–29, 1921.

GUALAQUIZA (F-4. Alt. 2,375–2,440 ft., Festa).—A mission station in the Amazonian Fauna of the Tropical Zone. Louis Fraser collected 48 species here in the winter of 1857–58. Festa was resident here from November 14 to December 2, 1895.

GUALEA (B-4. No. 2. Alt. 3,900–6,000 ft.).—Gualea is only a few miles northwest of Nanegal and, like it, has long been a favorite station for native collectors who evidently use the name in a general, as well as in an exact sense (see remarks under Salvadori and Festa, 1900). Goodfellow and Hamilton (1901–2) collected at Gualea in the summer of 1898 and Simon (1907) records species secured here by Dr. Rivet. The first-named author, as quoted by Oberholser (1902), gives the altitude of Gualea as 6,000 feet, but Simon, on the authority of Dr. Rivet, states that it is 1,200 meters. The fauna is subtropical implying that the last-named altitude is too low.

GUAMANI, CERRO OF (No. 80. Alt., 13,600 ft.).—A native collecting station above Tablon on the road from Quito to Papallacta (C-4). The Olallas have sent us 45 birds from Guamani.

GUANACILLO.—A station of Goodfellow and Hamilton's, who described it as, "a negro rubber-hunter's hut in a very small clearing in the forest a day's walk" from Santo Domingo (C-3) in the humid Tropical Zone of western Ecuador.

GUANO (D-4).—A town in the arid Temperate Zone about 8 miles northwest of Riobamba, at which Fraser collected two species (Sclater, 1858c).

GUAPULO (C-4. Alt. 8,750 ft.).—A pueblo about 3 miles northeast of Quito at which Fraser secured specimens of *Basileuterus nigricapillus* and *Atlapetes latinuchus* (Sclater, 1860), where Goodfellow and Hamilton (1901), Rivet (1907), and Chapman and Cherrie (1922) collected.

GUAYAQUIL (E-3. No. 18. Sea-level).—Principal port of Ecuador on the Guayas River in the Equatorial Arid Fauna. The shores of the river and its estuaries are bordered with red mangroves backed by savannas which are flooded in the wet season. The higher ground supports the characteristic vegetation of the Fauna, including ceibas and mimosas and vine-covered bushes. Almost the first birds to be described from Ecuador (1844, Lesson) were secured at Guayaquil. It has also been the port of shipment for specimens of species of the Temperate Zone (e. g. *Lathria fuscocinerea* "guayaquilensis" Ridgw.; *Cerchneis sparveria aequatorialis* Mearns).

Stolzmann and Siemeradski secured 47 species at Guayaquil and all our expeditions have collected in the vicinity. (Pl. XIII, fig. 2.)

HATUNTAQUI (alt. 7,885 ft.).—A pueblo about 10 miles west of Ibarra (B-4) from which Simon (1907) records several specimens secured by Dr. Rivet.

HUIGRA (E-4. No. 25. Alt. 4,000 ft.).—A station on the Guayaquil and Quito R. R., in the Chanchan Valley. Although the altitude is that of the Subtropical Zone, the mountains to the west prevent heavy rainfall and the growth is semi-arid. Rhoads and Lemmon collected at Huigra for about two weeks in February, 1911. (Pl. XVI, fig. 2.)

IBARRA (B-4. Alt. 7,300 ft.).—A town of northern Ecuador visited by Rosenberg (Hartert, 1898), Goodfellow and Hamilton (1901), and Festa (1909), and from which Simon records specimens secured by Dr. Rivet. Rosenberg writes "the country is open, and for the most part cultivated—wheat, barley and cotton being the staple products." This writer gives the altitude of Ibarra as about 6,600 feet, but according to Wolf it is as above.

ILINIZA, Mt. (C-4. Alt. 17,404 ft.).—A mountain on the western side of the tableland near the southern border of the Province of Pichincha, sometimes frequented by native collectors.

INTAC, PROV. IMBABURA (B-4. Alt. 3,900 ft.).—A pueblo in the western Subtropical Zone from which Simon (1907) records species secured by Dr. Rivet and Goodfellow (1901-2), others taken by himself and Hamilton. Goodfellow record "*Calliste aurulenta* (p. 461) "from Santo Domingo and Intag, w. Ecuador, between 600 and 1,500 feet," but Oberholser (1902) quoting Goodfellow (MS.) gives the altitude as 5,000 feet. Goodfellow uses both "Intag" and "Intaj," but Wolf, whom, as a rule, I follow in disputed cases, spells it Intac. The fauna is essentially the same as that of Guala and Nanegal.

JAMBELI IS. (No. 28).—The most northern of the group of islands opposite Machala (F-2), site of a lighthouse. The outer (gulf) shores are sandy, the interior and inner shores covered with mangroves. Gill secured 43 birds here October 31 to November 4, 1921, and the island was visited also by our expedition of 1922.

JIMA (F-4).—A Buckley locality in the eastern Andes apparently in the Temperate Zone. The name has evidently both an exact and regional significance, species recorded from Jima being from the Tropical, Subtropical, and Temperate Zones.

LA CAROLINA (alt. 9,300 ft.).—An area containing some hundreds of acres of level, low-lying land at the northern border of the city of Quito. During the rainy season (January to April), it is largely flooded and is then frequented by passing water-fowl. During the dry season (May to November), the water is restricted to a drainage stream and small tracts covered with aquatic vegetation. It is now used for a pasturage and, beyond a few rails, the water- and marsh-inhabiting birds have disappeared. Highways bound La Carolina on both east and west, the latter being, in fact, a continuation of a city street, and during the wet season few water-fowl visiting the lake escape observation. Of the many which are shot, a large number have found their way to the collection of Mr. Söderstrom, whose interest in birds is known to all native hunters. See especially in this connection the report of Lönnberg and Rendahl (1922) on the Söderstrom collection including the record of Nation's duck from La Carolina.

LA CHONTA (No. 32. Alt. 2,000 ft.).—A station on the trail to Zaruma between Santa Rosa (F-3) and El Chiral, in the humid Tropical Zone. Cherrie and Gill collected 158 birds here July 22–28, 1921.

LAGO YAGUARCOCHA. (B-4. Alt. 7,380 ft.).—An interandine lake about 8 miles north of Ibarra at which Rosenberg secured 6 species (Hartert, 1898), and from which the Olallas have sent us specimens.

LAGUNA DE TICKSAN, PROV. CHIMBORAZO (E-4. Alt. 9,000 ft.).—A little lake a league and a half from Alausi, visited by Stolzmann and Siemiradski (B. & T., 1884).

LAMBEDERO.—A pond in a forest near Lechugal on the Rio Zurumilla (F-2) visited by Stolzmann (Taczanowski, 1877).

LA PLATA IS. (D-1. No. 11).—In the arid Tropical Zone, about 20 miles off the coast at San Lorenzo. "Its slopes rise precipitously about 500 feet, forming a plateau five miles long by four at the widest part. This arid plain, cut by two ravines, is covered with thorny brush, wild cotton, cactus, and a few stunted trees. In March (25th) it was parched and brown and it had not rained for months. I found 15 species of land-birds, all breeding. Birds are scarce, except the Mockingbirds, Red-breasted Starling, Ground Dove, and two Flycatchers" (Richardson).

Only the Mockingbird differs, and that but slightly, from the mainland forms. (Pl. XI, fig. 1.)

LAS PIÑAS (No. 47. Alt. 3,600 ft.).—A station northeast of Alamor in a narrow valley with heavy forest and but little cultivation. Cherrie and Gill took 116 specimens here September 8–15, 1921.

LA UNION OR LLAGOS (alt. 9,000 ft.).—Farm situated in the neighborhood of the city of Chunchi (E-4). Virgin forest, high, cold; domain of the tapir and bear. Birds absent at Cechce are *Cyanocorax turcosa* and *Penelope montagnii*.

Stolzmann and Siemiradski, 12 species (B. & T., 1884).

LECHUGAL.—A locality in the Tropical Zone on the Rio Zurumilla (F-2) visited by Stolzmann (Taczanowski, 1877).

- LITA (Alt. 3,000 ft.).—A station in the Tropical Zone of northwestern Ecuador, doubtless on the river of the same name (B-4), from which Hartert (1902) records specimens.
- LLOA (C-4).—"A small pueblo situated a few miles to the southwest of Quito on the side of Pichincha in a well-wooded district." The altitude is not stated but the 19 species collected here by Fraser indicate that it is in the humid Temperate Zone (Selater, 1860b).
- LOJA (F-3. No. 90. Alt. 7,200 ft.).—A city of about 12,000 population in south-eastern Ecuador. The city lies in a broad, open valley drained by the headwaters of the Rio Zamora, an Amazonian tributary, and nestles close against the western base of the eastern range of the Andes. The valley is highly cultivated, the only patches of Temperate Zone forest occurring on the Andes flanking the valley, but Loja itself is in the arid Temperate.—H. E. A. (Pl. VIII, fig. 1.)
- LUNAMÁ (No. 40. Alt. 4,600 ft.).—A small valley north of Guachanamá (F-3), opening into the Rio Casanga. It is a semi-arid region with a small amount of forest, pastures, and large areas of tangled, thorny brush. Cherrie and Gill took 51 birds here August 12-14, 1921.
- MACAS (No. 72. E-4. Alt. 3,448 ft.).—Home of local collectors from whom we have received specimens taken in the vicinity and on the upper Upano and Zuna.
- MANAVÍ, COAST OF (C-2. No. 8).—Richardson collected on the coast of Manaví at Bahía de Caragues and Manta, but 83 of his specimens are labeled merely coast of Manaví, and were doubtless taken at or between these localities.
- MANGLAR ALTO (D-2. No. 12. Sea-level).—A coastal town at the foot of the Colónche range with a heavy rainfall and humid tropical growth.
- MANGLAR ALTO, CERRO OF.—That portion of the Sierra de Colónche east of the town of Manglar Alto. Tate collected at 1,200 to 1,500 feet on this mountain in May and June, 1923. It is densely forested and on the western slope rain falls almost daily. The 19 birds taken are chiefly representatives of the humid Tropical Zone.
- MANTA (C-2. No. 10. Sea-level).—A station in the Equatorial Arid Fauna. "A desert on the Pacific coast, level and sandy; where it has rained only three times since the rainy season began in January. Just now (March 10) the stunted scrubby growth of vines, brush, cactus, and the ceibas are green from the last rain. This desert country extends inland for 20 miles." (Richardson).
- MASPA (C-4 and 5).—A native collecting station near the headwaters of the river of the same name, on the eastern slope of the Andes between Papallacta and Baeza.
- MATOS.—A locality about 15 miles northeast of Riobamba (D-4) at which Fraser collected 35 species. The presence here of *Penelope montagnii*, *Euchlornis arcuata*, *Heliochera rubrocristata*, *Buthraupis eximia chloronota*, *Paeilothraupis lunulata lunulata*, etc., indicate that this station is in the humid Temperate Zone (Selater, 1858c).
- MICA, LAKE OF (Alt. 13,500 ft.).—An 'Alpine' lake in the Paramo Zone on Mt. Antisana (C-4) visited by native collectors.
- MILLIGALLI, PROV. PICHINCHA (Alt. 6,000-6,600 ft.).—A station of native collectors in the western Subtropical Zone on the trail to Santo Domingo (C-3). Allen

(1882) and Hartert (1898) both record several species from it, and Goodfellow (1901-2) and Hamilton secured several species here in September, 1898. Söderstom was resident here for some time while engaged in lumber enterprises.

MINDO, PROV. PICHINCHA (C-4. No. 3. Alt. 4,140 ft.).—A station of native collectors in the western Subtropical Zone at which Goodfellow and Hamilton (1901-2) obtained several species in November, 1898, and from which Simon (1907) records Hummingbirds secured by Dr. Rivet. Goodfellow gives the altitude as 7,000 feet (Oberholser, 1902) but according to Wolf it is 1,264 meters. (See in this connection my remarks under native collectors in the review of the history of Ecuadorean ornithology).

MOJANDA MTS. (No. 85).—A transverse chain or 'Nudo' which connects the western and eastern Andes and encloses the Quito Valley at the north. It rises just north of Guallabamba Cañon (C-4), in places from the cañon. The highest peak, Yana-urcu (B-4) reaches an altitude of nearly 14,000 feet, and the summit of the range generally extends to the Paramo Zone. There are large areas of luxuriant primeval Subtropical and Temperate Zone forest on at least the westerly exposures (s. w. to n. w.). The old road from Malchingui to Otavalo (B-4) passes over the range across the Paramo, but the new and easier route leads around the western slope at and near timber-line, and in places passes through highly developed Temperate Zone forest. Alonguinche and Piganta are stations in this range frequented by native collectors. (Pl. XX, figs. 1, 2; pl. XXII, fig. 1.)

MONJI.—A Buckley locality apparently in western Ecuador. I have been unable to place it.

NANEGAL, PROV. PICHINCHA (B-4. Alt. "about 4,000 ft.").—A pueblo in the western Subtropical Zone about 30 miles northwest of Quito. It has long been a favorite station of native collectors whose apparent use of the name "Nanegal" in a regional sense robs it of exact geographical meaning (see remarks under Salvadori and Festa, 1899). Fraser collected here in February, 1859 (Sclater, 1860), and Goodfellow and Hamilton in the summer of 1898 (Goodfellow, 1901). The first-named gives the altitude of Nanegal as 1,000 feet (see Oberholser, 1902) but according to Fraser it is "about 4,000 feet," and Simon (1907) states that it is 3,900 feet. The character of the avifauna indicates that the last-named altitudes are more nearly correct.

NAPO, PROV. DEL ORIENTE (C-6. Alt. 1,680 ft.).—A pueblo, in the Tropical Zone on the upper Rio Napo, from which have doubtless come many so-called "Napo" trade-skins. The name is used, however, more in a regional than in a local sense, and "Rio Napo" specimens, while largely from the Tropical Zone, may be from the Subtropical or even Temperate Zone.

A collection of 174 species (Sclater, 1858a) is believed to have been made by M. Villavicencio at this place. Over 90 per cent of them are restricted to the Tropical Zone, but the collection also contains such characteristic subtropical species as *Andigena nigrirostris spilorhynchus* (found also in the Temperate Zone), *Chlorochrysa calliparza*, *Creurgops verticalis*, *Buarremon brunneinucha*, *Lipaugus fusco-cinereus*, *Scytalopus micropterus*, *Pharomachrus antisiensis*, and *P. auriceps*; while two species, *Penelope montagnii* and *Nothocercus julius*, are typical of the Temperate Zone.

Oberholser (1902) records Hummingbirds from "Napo village." (Pl. XII, fig. 2.)

NARANJO OR NARANJITO (E-3. No. 20. Alt. 100 ft.).—A station on the Guayaquil and Quito R. R. about 30 miles east of Duran near the western border of the humid Tropical Zone. Richardson collected here in May and December, 1913. Some of his specimens came from farther up the railroad line.

NIEBLI (B-4. Alt. 7,500 ft.).—A native collecting station about 25 miles north of Quito.

NONO (B-4. Alt. 3,900 ft.).—A locality on the Pacific slope about 18 miles northwest of Quito from which have been recorded a few native-made specimens.

OTAVALO (B-4. Alt. 8,375 ft.).—A locality in northern Ecuador from which Simon (1907) records specimens secured by Dr. Rivet.

OYACACHI (C-4. No. 78. Alt. 8,180 ft.).—A locality on the headwaters of the Papallacta from which Simon (1907) records specimens secured by Dr. Rivet, and from and below which the Olallas have sent us 1,116 specimens.

PAGMA FOREST.—A locality above Huigra (E-4) in the Subtropical Zone at which Rhoads and Lemmon collected March 19–27; June 30 to July 4, 1911.

PALENQUE (D-3. Alt. 260 ft.).—A pueblo in the humid Tropical Zone of western Ecuador from which Dr. Rivet secured several specimens (Simon, 1907).

PALLATANGA (D-4. No. 24. Alt. 4,950 ft.).—A village on a cultivated plain of the Pacific slope through which flows the Rio Coco, a small tributary of the Rio Chimbo. Mountains, locally forested, rise on every side, in some places to the Paramo Zone.

Fraser collected here during part of August, all of September and October, and parts of November and December, 1858, securing about 600 specimens of 154 species. (Sclater, 1860a). We took 38 specimens here July 29–30, 1922. With but few exceptions they all represent species characteristic of the Subtropical Zone.

PALMAL.—A station in virgin forest, four hours from Lechugal on the Rio Zarumilla, (F-2) in which Stolzmann and Jelski collected 29 species, chiefly of the humid Tropical Zone (Taczanowski). The forests are later compared to those at Puente de Chimbo (B. & T., 1883).

PAMBILÁR.—A locality in the Tropical Zone of northwestern Ecuador whence Hartert (1902) records specimens.

PANZA (D-4. Alt. 14,000 ft.).—A station on the southern slope of Chimborazo at which Fraser secured 18 species in the latter part of January, 1859. The habits of certain of these birds (*e.g.* *Attagis latreillei* and *Oreomanes fraseri*) indicate that the region is one of open paramo with the bushes and stunted trees of the upper border of the humid Temperate Zone extending up the barrancas (Sclater, 1860b).

PAPALLACTA (C-4. No. 79. Alt. 10,345 ft.).—Described by Goodfellow (1901), who, with Hamilton, found birds abundant here, in February, 1899, as a small Indian village on the eastern slope of the eastern Andes "standing in a romantic and verdant bend of a spur of Antisana." This writer gives the altitude of Papallacta as 11,500 feet, but according to Wolf it is as above. The place is on the trail from Quito to the Napo and is often visited by native collectors. From it the Olallas have sent us 62 specimens.

PARAMBA, PROV. IMBABURA (B-4. Alt. 3,500 ft.).—A farm on the western bank of the Rio Mira. It is in the forest region, but the open country commences 2 to

3 miles further up the Mira (Rosenberg). Hartert (1898, 1902) records 85 species secured by Rosenberg and his collectors at this locality. With but few exceptions they are representative of the Tropical Zone.

PATATE (D-4. Alt. 7,530 ft.).—A locality on the interandine portion of the Rio Pastaza from which Simon (1907) records specimens secured by Dr. Rivet.

PATO DE PAJARO, CERRO OF (alt. 2,000 ft.).—A small coastal range on the upper Rio Guaque (B-3). Tate secured 10 humid tropical species here in June and July, 1923.

PEDREGAL, PROV. CHIMBORAZO (alt. 2,600 ft.).—A farm in the vicinity of Cayandeled (E-4) at which Stolzmann and Siemiradski secured 23 species.

PENIPE (D-4. Alt. 8,027 ft.).—A town in the arid Temperate Zone about 10 miles north of Riobamba at which Fraser collected 6 species (Sclater, 1858c).

PERUCHO (B-4. Alt. 6,000 ft.).—Situated in the upper Guallabamba Valley about 26 miles north of Quito. The 16 species secured here by Fraser in April, 1859, are chiefly representative of the Subtropical Zone though none would indicate the presence of heavy forest growth (Sclater, 1860c).

PICHINCHA (C-4. Alt. Guagua Pichincha, 16,000 ft.; Rucu Pichincha, 15,400 ft.).—This mountain, rising above Quito, is usually referred to as Pichincha without distinction in regard to its higher (Guagua) or lower (Rucu) summit.

On native-made skins the name "Pichincha" is often regional rather than definitely local and may mean anywhere on the foothills or slopes of the mountain from the upper border of the Subtropical to the Paramo Zone. Jameson (Jardine, 1849-50), Fraser (Sclater, 1860b), Goodfellow and Hamilton (1901), and Rhoads (1912) have all collected on Pichincha. Goodfellow writes: "We found Pichincha wonderful collecting-ground and as it rises above the city of Quito it is very accessible. At the summit of the Crater it is 16,000 feet high and so just reaches the snow-line, but for 2,000 feet above Quito its slopes and villages are covered with flowering bushes and stunted trees which teem with birds, Hummingbirds predominating. Still higher up grows the wiry 'paramo grass,' also the haunt of many varieties, notably *Attagis chimborazensis* [= *A. latreillii*], *Gallinago jamesoni*, and *Nothoprocta curvirostris*." Rhoads gives a graphic account of the bird-life of the Paramo Zone on Pichincha. (Pl. XXIV.)

PIFO (Alt. 8,475 ft.).—A locality about 10 miles east of Quito, at which Goodfellow and Hamilton collected and from which Simon (1907) records specimens secured by Dr. Rivet.

PIGANTA (Alt. 8,500-9,000 ft.).—A station of native collectors on the western slope of the Mojanda Mts. at the junction of the Subtropical and Temperate Zones.

POMASQUI (No. 83. Alt. 8,200 ft.).—A town of some size 15 miles north of Quito on the main highway to Otavalo. The surrounding slopes are bare or thinly grass-grown. The irrigated bottom lands along the Pomasqui River are devoted chiefly to alfalfa and grazing. The fauna is that of the arid Temperate Zone, with a slight tinge of arid tropical forms which have evidently followed up the Guallabamba. The result is the association of such zonally unrelated forms as *Patagona gigas* and *Pyrocephalus rubinus*.

Visited by American Museum Expedition of 1922, in August en route to the Mojanda Mts.

PORTOVELO (P-3. No. 34. Alt. 2,000 ft.).—A mining camp of the South American Development Company in the Zaruma region. Headquarters of several of our expeditions. Portovelo is on the upper Tumbes drainage and in the humid tropics, although most of the immediate vicinity is treeless and has much of the appearance of the arid tropics. Considerable deforestation has taken place, but the topography is very broken and doubtless large areas have had no large trees in recent times.—H. E. A. (Pl. VII, fig. 1.)

POZO DE LAMBEDERO.—A swamp in the forest about a mile from Lechugal on the Rio Zarumilla (F-2). Stolzmann and Jelski collected here (Taczanowski, 1877).

PUELLARO (B-4. Alt. 6,500 ft.).—A pueblo in the upper Guallabamba Valley about 20 miles north of Quito where, in April, 1859, Fraser collected 10 species which indicate that the country is of much the same nature as that about Perucho (Sclater, 1860c).

PUELLARO, ABOVE (B-4. Alt. 8,000 ft.).—This station is described as "the wooded heights above 8,000 ft.," specimens from it being recorded as from "above Puellaro." The 28 species taken here by Fraser in April and May, 1859, indicate that the region is in the humid Temperate Zone (Sclater, 1860c).

PUEMBO (C-4. Alt. 8,135 ft.).—A locality about 10 miles northeast of Quito at which Goodfellow and Hamilton (1901) collected, and from which Simon (1907) records specimens secured by Dr. Rivet.

PUNTE (No. 49. Alt. 2,500 ft.).—About an hour south of Pullango (F-2). Dense jungle with some cleared pasture-land. Gill took 28 birds here Oct. 8–11, 1921.

PULLANGO (F-2. No. 50. Alt. 1,000 ft.).—Equatorial Arid Fauna, with ceibas and much thorny bush. Watkins took 28 specimens here July 16–17, 1919, and Gill, 35, Oct. 11–17, 1922.

PUNA IS. (E-2. No. 26).—An island in the arid Tropical Zone in the Gulf of Guayaquil. On its western side it is distant only $1\frac{1}{2}$ nautical miles from the mainland with which, according to Wolf, it was connected in recent geologic time.

None of the species which has been described from Puna Island appears to be restricted to the island which, indeed, may be regarded as peninsular rather than insular.

Lawrence (1869) records 21 species from Puna, and Richardson collected 196 specimens here March 31 to April 12, 1913, and both the northern and southern (Puna vieja) ends of the island were visited by our expedition of 1922.

PUNIN (D-4. Alt. 9,000 ft.).—A town in the arid Temperate Zone about 5 miles south of Riobamba at which Fraser collected 5 species (Sclater, 1858c).

PUNTA SANTA ANA (F-3. No. 38. Alt. 3,650 ft.).—A camp about half a day's travel along the trail from Portovelo to Loja. At this point a heavy stand of fine forest lies in an extensive basin fed by streams that are headwaters of the Rio Tumbes. The surrounding district is arid and desolate and the contrast with Punta Santa Ana is marked. Humid tropics describes the zone about the camp but sub-tropics could be reached by climbing the steep slopes north of our camp.—H. E. A.

QUIJOS, PROV. OF (C-5).—A region on the Amazonian slope between the upper Rio Napo and Rio Maspá from which Sclater (1854) recorded 69 species including forms representative of both the Tropical and Subtropical Zones

QUIJOS, PUENTE DEL RIO (C-5).—A crossing of the Rio Quijos east of Baeza on the Napo trail, in the Subtropical Zone

QUILLOTOA (C-4. Alt. 13,400 ft.)—A mountain west of Latacunga whence, at an altitude of 12,000–13,000 feet, came the type of *Oreotrochilus chimborazo sodestromi* Lönn. and Rendh.

QUITO (C-4. No. 82. Alt. 9,350 ft.)—Capital of Ecuador situated in the arid Temperate Zone on the western side of the Andean tableland at the eastern base of Pichincha. There are no forests in the vicinity of Quito, but gardens, introduced trees, and hedges, chiefly of cactus, and agaves supply food and shelter for certain arboreal and bush-haunting species

Since about 1846, Quito has been the distributing point for bird-skins, though the trade in them has never reached the magnitude it attained in Bogotá. These specimens come from the vicinity of the city, from the 'Napo' region on the Amazonian slopes of the Andes, and from Nanegal, Gualea, and other localities on the Pacific side rarely below the Subtropical Zone.

Some of the specimens are labeled with their approximate place of capture, but beyond indicating with more or less certainty whether the bird came from the eastern or western slope, the locality given—particularly in the case of 'Napo' birds, cannot be accepted as definite. Compared with the flat, contracted 'Bogotá' skins, 'Napo' specimens are fuller, especially on the breast, and with the wings and tail not pushed into the body. Our knowledge of Quito ornithology, however, does not rest upon so unsatisfactory a basis as these trade skins. Jameson (Jardine, 1849, 1850), Orton (1871), Fraser (Sclater, 1860b), and Rhoads (1911) have all contributed to our knowledge of the bird-life of Quito and its vicinity, but the most thorough field-work in this region has been done by Goodfellow and Hamilton, who made Quito their headquarters for several months in 1898 (Goodfellow, 1901). (Pl. IX, fig. 2.)

RIOBAMBA (D-4. Alt. 9,050 ft.)—A city of the arid Temperate Zone in the center of a region largely devoted to the cultivation of cereals at which Fraser collected 16 species (Sclater, 1858c). (Pl. IX, fig. 1.)

RIO BLANCO, PROV. PICHINCHA (B-3).—A river arising on the northwest slope of Pichincha which flows northwest and joins the Guailabamba to form the Esmeraldas. The country bordering its banks is much frequented by native collectors, particularly at and below Mindo.

RIO CASANGA (Alt. 2,900 ft.)—A camp in the hot, arid valley of the Rio Casanga, a tributary of the Rio Catamayo (F-3). The Casanga region is open and barren in the arid tropics, the vegetation being scanty and the hillsides greatly eroded. The valley is rather extensive, and collecting did not cover a vertical range of any consequence. Fair-sized groves of green-barbed ceiba and scattering galley forest along the few trickling streams afforded the only collecting spots.—H. E. A. (Pl. VII, fig. 2.)

RIO COCA, PROV. DEL ORIENTE (C-6).—A tributary of the upper Napo at the mouth of which Goodfellow and Hamilton (1901–2) collected in May, June, and July, 1899. The fauna is tropical.

RIO CURARAY (D-5 to 7).—A tributary of the Napo in eastern Ecuador from which have come numbers of native-made specimens.

RIO DE ORO (C-3. No. 6. Alt. about 1,000 ft.)—Virgin humid tropical forest, about 60 miles from the coast. Near or on the divide between Esmeraldas and Guayas drainage. Richardson collected 291 specimens here.

RIO JAPAYO.—See Rio Sapayo.

RIO JUBONES (No. 27. Sea-level).—The name is applied to the lower part of the Rio Rompido (F-3). Gill secured 35 specimens here Oct. 11–17, 1921.

RIO MACHÁNGARA.—A stream which flows through Quito and down the Guápulo Cañon to enter the Rio San Pedro in the Tumbaco Valley. Many specimens have been taken near it, chiefly about Guápulo.

RIO PERIPA (C-3).—A tributary of the Daule visited by Festa.

RIO PINDO (No. 39. Alt. 1,850 ft.).—A camp 6 miles east of Portovelo (F-3) in a narrow valley. The hillsides were barren and steep, the only vegetation of any consequence being gallery forest along the clear stream which comes down from the Cordillera de Chilla. Faunally Rio Pindo belongs with Portovelo but is more arid in appearance.—H. E. A.

RIO SAN PEDRO.—One of the upper tributaries of the Guallabamba in the lower Chillo Valley (C-4) east of Quito.

RIO SAPAYO.—A tributary of the Rio Cayapas (B-4) in the Tropical Zone of northwestern Ecuador. Type-locality of *Sapayoa enigma* Hart. Misspelled "Japayo" (Hartert, 1902).

RIO SUNO, PROV. DEL ORIENTE (C-6. No. 73).—A tributary of the upper Napo in the humid Tropical Zone at which Goodfellow and Hamilton (1901–2) collected during the first half of May, 1899, and from which the Olallas have sent us 1,392 specimens. According to the Olallas, the temperature at sunrise in February and April in the upper Rio Suno varied from 18° to 20° Cent. (= 64° to 68° Fahr.) and 23° to 27° Cent. (= 73° to 81° Fahr.) at sunset.

RIO TIPUTINI.—A tributary of the lower Napo at the mouth of which Goodfellow (1901–2) and Hamilton collected species in the first half of August, 1899.

ROMERILLOS (Alt. 11,000 ft.).—A locality on the eastern slope of Mt. Iliniza (C-4) sometimes visited by native collectors.

SABANILLA (G-3. No. 70. Alt. 5,700 ft.).—An old abandoned clearing high up the mountainside above the Rio Zamora, along the trail from Loja to Zamora. Surrounded by magnificent subtropical forest, it is in a zone of frequent and heavy rainfall. Collecting covered a vertical interval of about 4,000 to 7,000 ft.).—H. E. A.

SALVIAS (No. 36. Alt. 3,500 ft.).—A small hacienda on the Rio Amarillo, a short distance north of Portovelo (F-3) and in the humid tropics. At Salvias the trail begins to climb the mountain en route to Taraguacocha and Zaraguro. The valley of the Amarillo—a small mountain torrent—is narrow at Salvias and closed in by ranges which reach 13,000 feet or more and pass through subtropics and Temperate to Paramo. Collecting at Salvias covered to about 5,500 feet of altitude, or from the tropics into the subtropics.—H. E. A.

SAN BARTOLO (No. 43. Alt. 7,500 ft.).—A station on the western slope of Guachanamá. On the southern slope there is heavy forest; on the northern, brush and dwarfed growth. Cherrie and Gill took 115 birds here Sept. 3–6, 1921.

SAN GABRIEL (B-5. Alt. 9,340 ft.).—A locality on the tableland of northern Ecuador from which Simon (1907) records several specimens secured by Dr. Rivet.

SAN JAVIER.—A locality in northwestern Ecuador from which Hartert (1902) records specimens.

SAN JOSÉ DE SUMACO (C-6. No. 74).—A small settlement on the flanks of Mt. Sumaco at the lower border of the Subtropical Zone. The site of the town is shifted in response to the need for fresh ground for crops, the present San José being apparently lower than the preceding one (San José viejo). The sunrise and sunset thermometer readings at San José viejo March 19–20, 1923, are given by the Olallas as 14° to 15° Cent. (=57° to 59° Fahr.) and 16° to 17° Cent. (=61° to 63° Fahr.) respectively.

It should be understood that all American Museum specimens recorded from "San José" or "below San José" are from or near San José de Sumaco.

SAN LUCAS.—Specimens in the British Museum collected by Villagomez and by Illingworth are said to have come from San Lucas. This station is apparently in western Ecuador but I have been unable to place it.

SAN NICOLAS, PROV. PICHINCHA (alt. 3,000 ft.—Goodfellow, 1901, p. 479).—A station evidently on the trail to Santo Domingo de los Colorados (C-3) at which Goodfellow, with Hamilton, collected in September, 1898.

SAN PABLO, LAKE OF (B-4. No. 86. Alt. 8,000 ft.).—A small lake near Otavalo frequented by Temperate Zone water-fowl.

SANTA CLARA IS. (F-2. No. 29).—Site of a lighthouse at the entrance to the Gulf of Guayaquil. Southernmost breeding station of *Fregata magnificens rothschildi* and *Sula nebouxi*. Visited by Murphy and Heilner. (Pl. XI, fig. 2.)

SANTA ELENA (E-2. No. 14. Sea-level).—A coastal locality in one of the most arid parts of Ecuador, and the most northern point at which certain South Temperate species have been found. (Pl. IV, fig. 1.)

SANTA INEZ (Alt. 4,075 ft.).—A locality on the Rio Pastaza about 20 miles east of Baños (D-4) from which Simon (1907) records specimens secured by Dr. Rivet.

SANTA LUZIA.—A settlement in the mangroves on the northern side of the delta of the Rio Tumbes (F-2). Stolzmann and Jelski collected at this point (see Taczanowski, 1877). Spelled Santa Lucia by Wolf.

SANTA RITA.—Specimens in the British Museum credited to Buckley and to Villagomez are said to have come from Santa Rita; for example, the types of *Haplosittaca pyrrhops* and *Chloroceryle aquatorialis*. This station is apparently in western Ecuador but I have been unable to place it.

SANTA ROSA (F-3. No. 31).—Head of navigation on the river of the same name (the port is Puerto Pital). There are marshes with great numbers of water-fowl a few miles above the port, but the region is in the Equatorial Arid Fauna. Richardson took 167 birds here in September and November–December, 1913. Cherrie and Gill, 251, in July and October (Gill only), 1921.

SANTO DOMINGO DE LOS COLORADOS (C-3. Alt. 1,625 ft.).—A station, according to Goodfellow (1901), consisting of but three huts in the forests of the humid Tropical Zone of the Pacific. This author, who, with Hamilton, collected here in October, 1898, said it was his "best" collecting-ground. He gives its altitude as 600 feet, but according to Wolf and Dr. Rivet (Simon, 1907) it is 500 meters above sea-level.

SARAYACU (D-5. Alt. 1,500 ft.).—A pueblo on the Rio Bobonaza at which C. Buckley made his headquarters. His collection of "upwards of 10,000 skins referable to nearly 800 species" is said to have been formed on the "upper branches of the Rio Pastaza and on the spurs lying between this stream and its

affluent the Bobonaza" (S. & S., 1880). The collection, as a whole, was never reported on but Salvin & Godman secured a "complete set" of skins many of which are listed in the 'Catalogue of Birds of the British Museum.'

SINCHIC (Alt. 11,000 ft.).—A hacienda northeast of Guaranda (D-3) visited by Simon (Chubb, 1919) and Tate. The latter states that the vegetation is principally of pampas and bunch grass but that there are several patches of low temperate forests.

SINCHOLAGUA, Mt. (C-4. Alt. 16,500 ft.).—A mountain on the eastern side of the 'tableland sometimes visited by native collectors.

SINGUNA (Alt. 11,000 ft.).—A native collecting station on the northern slopes of Pichincha.

SUMACO, Mt. (No. 75).—A mountain at the head of the Rio Suno (C-6) which, according to Sinclair, has an elevation of 12,700 feet. It was ascended in 1925 by G. M. Dyott who tells us that it is forested nearly to the summit which is grass-covered. The Olallas established two camps on Sumaco. The first, known as "Sumaco abajo" or lower Sumaco, is in the Subtropical Zone; the second, known as "Sumaco arriba" or upper Sumaco, is in the humid Temperate Zone. They have sent 386 specimens from lower Sumaco, 382 from upper Sumaco.

SURUPATA, PROV. CHIMBORAZO (Alt. 3,700 ft.).—A farm in the vicinity of Cayandeled (E-4) at which Stolzmann and Siemiradski collected 16 species (B. & T., 1884).

TABLON (Alt. 12,500 ft.).—A locality in the Paramo Zone on the road from Quito to Papallacta (C-4).

TARAGUACocha (F-3. No. 37. Alt. 9,750 ft.).—A small clearing and abandoned hut in the humid Temperate Zone along the trail from Salvias to Zaraguro, Cordillera de Chillo. Collecting extended upward into the paramo at 11,000 to 12,000 feet. Heavy, gnarled forest, moss-covered, runs up sheltered ravines to about 12,000 feet, but extensive stretches of open grassy meadow begin at about 10,500 to 11,000 feet. This region is only sparingly inhabited and is an excellent grazing district above timber-line.—H. E. A. (Pl. VI, fig. 2.)

TEMBLEQUE Is. (No. 30).—One of a group of islands on the southern shore of the entrance to the Gulf of Guayaquil (= Canal de Jambeli, F-2). There are vast mud-flats at low tide on the gulf side, mangroves on the inner shores and a small amount of land above tide-water, with low tree-growth. Visited July 17 by our expedition of 1922.

TITIACUN.—A station about 12 miles southeast of Riobamba "high up on the slopes of El Altar" (D-4). Ten species collected by Fraser indicate that it is in the humid or semi-humid Temperate Zone (Sclater, 1858c).

TRIBULPATA, PROV. CHIMBORAZO (Alt. 7,000 ft.).—A station of Stolzmann and Siemiradski in the forest above Cayandeled (E-4) where one finds the first *Lafresnaye*, the *Metalluras*, and *Psittospiza riefferi*; evidently, therefore, near the lower margin of the humid Temperate Zone.

TULCAN (B-5. Alt. 9,700 ft.).—A town on the tableland near the Colombian border from which Simon (1907) records several specimens secured by Dr. Rivet.

TUMBACO (C-4. No. 81. Alt. 7,830 ft.).—A locality about 7 miles east of Quito in the arid Temperate Zone at which Goodfellow and Hamilton (1901) collected and from which Simon (1907) records specimens secured by Dr. Rivet. It is

often visited by native collectors from whom we have purchased some 60 Tumbaco specimens.

TUMBEZ (F-2. No. 51).—A town on the right bank of the Rio Tumbes between 4 and 5 miles from its mouth. The delta of the river is bordered with mangroves and the mainland marks the northern limit of the excessively barren Desert of Tumbes and the appearance of the semi-arid growth of the Equatorial Arid Fauna. (Pl. V, fig. 1.)

TURUBAMBA (C-4. Alt. 9,500 ft.).—A locality in the arid Temperate Zone 6 miles south of Quito.

URBINA (D-4. No. 87. Alt. 11,841 ft.).—A station on the line of the Guayaquil and Quito R. R. in the Paramo Zone at the base of the eastern slope of Chimborazo. Our expedition of 1916 secured 48 specimens here May 27–30.

VALLE DE VICIOSA (C-4. Alt. 14,500 ft.).—"In the eastern mountains at the back of Cotopaxi. This little-known valley, or plateau, stands at an elevation of 14,500 feet and is bounded by Antisana, Cotopaxi, Quilindafña, and other snow-covered peaks, while from the far end of it a view can be gained of the lower forest-covered mountains stretching away down to the rivers forming the headwaters of the Amazon. With the exception of two shepherd's huts, which are far apart, this valley is uninhabited, and most of the country for miles is very cold, and snow fell on several nights during our stay there in December."—(Goodfellow, 1901, p. 305.) The author quoted, with Hamilton, collected at this locality.

VAQUERIA.—A station at the mouth of the Rio Santiago (A-3) whence Hartert (1902) records specimens.

VERDECOCHA (No. 4. Alt. 9,400 ft.).—A settlement of four houses at the northwestern base of Pichincha (C-4), one day's journey from Quito on the road to Mindo. The fauna is that of the humid Temperate Zone with a tinge of the Subtropical. The mountainsides are forested chiefly with first-growth, but the bottom-lands have been cleared, and, where not in open pasture, are covered with bushy second-growth. Native collectors on the way to Mindo sometimes remain a short time at Verdecocha. The American Museum expedition of 1922 secured 37 specimens here. (Pl. XIX, fig. 2.)

VINCES (D-3).—A locality in the Tropical Zone on the river of the same name, near which Festa collected from September 2–30, 1897.

YAGUACHI, PROV. DEL GUAYAS (E-3).—On the bank of the river of the same name, tributary of the left side of the River Guayas. Climate a little more humid than that of Guayaquil; vegetation similar, but the fauna differs but little (B. & T., 1883). Stolzmann and Siemiradski secured 63 species here.

YANACOCOA (No. 5. Alt. 10,700 ft.).—A small hacienda on the northwestern slope of Pichincha in the humid Temperate Zone. The remaining tree-growth is low but dense. There are bare grassy slopes due to deforestation and marshy glade-like openings. The American Museum expedition of 1922 secured 51 specimens here. (Pl. X, fig. 1.)

YARAQUI (C-4. Alt. 8,465 ft.).—A locality about 15 miles northeast of Quito. Simon (1907) records specimens secured by Dr. Rivet.

YOYAXI, PROV. CHIMBORAZO (alt. 9,000 ft.).—A vast marsh in the middle of the forest. The climate cold, similar to that of Alpachaca and Cechce, but the forest

is more elevated than the localities cited, where, at 8,000 feet, myrtles and laurels are found, in the middle of which are groups of high trees, on the road from Alausi (E-4) to Cuenca. Stolzmann and Siemiradski, 3 species (B. & T., 1884). Spelled also Yoyacsi.

ZAMBIZA.—A station of native collectors in the arid Temperate Zone, about 10 miles northeast of Quito.

ZAMORA (G-4. No. 71. Alt. 3,250 ft.).—A small settlement of about eight to ten huts along the Rio Zamora at the junction of the Rio Bombascaro, Provincia de Loja. It is in the humid Tropical Zone but with extensive areas of subtropical forest a short distance up the river and on the mountain slopes above. Rainfall is heavy and wet season long. Good crops of sugar-cane, plantains, and cassava are raised along the narrow river-flats. Zamora is in the territory of the Jivaro Indians who have killed off much of the large edible game.—H. E. A. (Pl. VIII, fig. 2.)

Fraser collected here in the winter of 1857-58; Richardson, in October and November, 1913; and Anthony and Cherrie in December, 1920.

ZARUMA (F-3. No. 34. Alt. 3,936 ft.).—Zaruma itself is in the arid tropics and our specimens listed from this locality were collected (by Richardson in September and October, 1913) some 3 miles above the town in the subtropics.

BIBLIOGRAPHY

A LIST OF THE MORE IMPORTANT PAPERS
RELATING TO ECUADOREAN BIRDS

This bibliography is largely restricted to the citation of papers on Ecuadorean birds which have been published as such. References to purely systematic papers and descriptions of new species will be found under the species to which they refer. I have, however, made an exception to this rule with the earliest papers on Ecuadorean birds, which are given place here because of their historic interest.

1831. LESSON, R. P. *Illustrations de Zoologie*. Bull. Sci. Nat. (Ferrusac), XXV, p. "243" = typographical error for 343.

Includes a detailed, unmistakable description of *Attagis latreillii*, which is compared with *Attagis gayi* (figured by Lesson in a 'Centurie de Zoologie,' 1830), from a specimen "conservée dans la collection de M. Pecquet, et que M. Canivet nous a communiquée, provenait d'une collection expédiée de Buenos-Ayres."

The species described is known only from the Paramo Zone of Ecuador whence, therefore, Lesson's specimen must presumably have come. The date of collection is not given, but the date of description is so long before our first records of bird-collecting in Ecuador that I am wholly at loss to explain the presence in a collection sent from Buenos Aires of a species confined to Ecuador, and with a comparatively restricted range above the altitude of human habitation.

1832. LESSON, R. P. *Ornismya dumerilii*, Hist. Nat. Colibris, Suppl., p. 172, pl. 36.

The Hummingbird here described is said to have come from "les provinces septentrionales du Chile," then south of Antofogasta, but since the genus is unknown so far south, and as the bird figured agrees with the northern race of this group, Lesson's locality is considered erroneous and his name is accepted for the western Ecuadorean form now known as *Amazilia amazilia dumerilii*.

1844. LESSON, R. P. *Oiseaux Nouveaux*. Rev. Zoöl., 1844, pp. 433-437.

Describes *Picolpates* [= *Furnarius*] *cinnamomeus*, *Ornismya* [= *Damophila*] *felicianae*, *Arremon abeillei*, and *Tiaris* [= *Rhodospingus*] *cruentus* from Guayaquil.

1847. BOURCIER, JULES. Description de Quinze especès de Trochilideés du Cabinet de M. Loddiges. P. Z. S., 1847, pp. 42-47.

Trochilus norrisii [= *Amazilia amazilia dumerilii* (Less.) 1832] described on p. 47, from Guayaquil.

1847. BOURCIER, J. *Trochilus luciani*. Ann. Sci. Phys. et Nat., de Lyons, X, p. 624.

Description of this species collected by De Lattre at Guaca.

1849. JARDINE, W. Ornithology of Quito. *Jard. Cont. Orn.*, pp. 41-45, 66, 67.

Report on eight species of upper-zone birds received from William Jameson and a résumé of d'Orbigny's paper on the distribution of birds (*Compt. Rend. Acad. Sci.*, V, 1837, pp. 496-498; VI, 1838, pp. 190-194).

1850. JARDINE, W. Ornithology of Quito. *Jard. Cont. Orn.*, 1850, pp. 1-3.

Comments on eight species of birds received from Jameson.

1850. OSCULATI, GAETANO [and Aemilio Cornalia (birds)]. *Esplorazione delle regioni Equatoriali; lungo il Napo ed il fiume delle Amazoni*. Milan, 1850, 2d edition. 1854.

Osculati left Panama March 29, 1847, arrived at Guayaquil April 2, and in Quito April 22, 1847. Leaving Quito June 7, he passed through Archidona July 21, and went down the Napo to the Amazon and thence to the Atlantic.

The second edition of his work contains (pp. 305-307) a nominal list of 157 species secured by Aemilio Cornalia. Some 40 of these are recorded from Ecuador, chiefly from "Quixos" and "Napo."

1851. BONAPARTE, CH. Note sur les Tangaras, leurs affinités et descriptions d'espèces nouvelles. *Compt. Rend. Acad. Sci.* XXXII, 1851, pp. 76-83.

The description as new of some Tanagers brought by Bourcier from Ecuador (see below—1851. Bourcier, (Jules was made the occasion for a review of the group.

It is not clear just how much of the material treated Bonaparte owed to Bourcier, but the following species described as new occur in Ecuador:

Chlorochrysa bourcierii (this is stated to have come from the forests near Baños); *Chlorochrysa phænicotis*; *Calliste* [= *Tangara*] *icterocephala*; and *Calliste* [= *Tangara*] *rufigula*. *Calliste guttulata* [= *Tangara guttulata* Cab.] of more northern South America, but still unknown from Ecuador, is also described but without locality.

1851. BOURCIER, J., et Mulsant, E. *Trochilus stanleyi*. *Ann. Sci. Phys. et Nat.* Lyons, ser. 2, III, pp. 199-203.

Description of a Hummingbird from the Paramo Zone of Pichincha, with an account of the ascent of this mountain by the discoverer of the bird, Edward Henry Stanley, after whom it was named.

1851. BOURCIER, JULES. Note sur Onze espèces nouvelles de Trochilidées. *Compt. Rend. Acad. Sci.*, XXXII, 1851, pp. 186-188.

Geoffroy Saint-Hilaire adds a note to his article, saying that, in addition to the 11 species described as new, Bourcier brought back 43 others which had already been described but were for the most part rare.

Bourcier was French Consul-General to Ecuador in the years 1849 and 1850, and doubtless resided in Quito. The localities given for the species herein described indicate that he bought his specimens from native collectors. Thus we have mentioned here such now well-known stations as "Nanegan" (= Nanegal), "Guayabamba," "Archidona," "Pichincha," "Cotopoxi" (Cotopaxi), "Guala," "Napo," "Calacoli" (= Calacali).

Bonaparte (see above, 1851) refers to a specimen of *Tanagrella calophrys* which Bourcier received from the Indians of Napo.

It is evident, therefore, that as early as 1849-50 native collectors were at work in a number of localities in eastern as well as western Ecuador.

1852. BOURCIER, J., et MULSANT, E. Description de Quelques Nouvelles Espèces d'Oiseaux-Mouches. *Ann. Sci. Phys. et Nat. Lyon*, ser. 2, IV, pp. 139-144.
Four species are described from Ecuador as follows:
Trochilus dohrnii, Ecuador.
Trochilus humboldti, River Mira, Esmeraldas.
Trochilus oseryi, Pastaza.
Trochilus nigrivestris, "environs de Tumbaco" [=Tumbaco ?].
1854. SCLATER, PHILIP LUTLEY. List of Birds Received by Mr. Gould from the Province of Quixos, in the Republic of Ecuador. *Proc. Zool. Soc. London*, pp. 109-115; Aves pls. 66, 67. Sixty-nine species from the region lying between the upper Napo and Maspa, and including forms characteristic of both the Subtropical and Tropical Zones. Published also with the omission of "*Formicivora cærulescens*" and the identification "*Gymnomystax*" as *Gymnomystax mexicanus* in *Ann. & Mag. Nat. Hist.*, XVI Ser. 2, 1855, pp. 279-285.
1855. SCLATER, PHILIP LUTLEY. List of a Collection of Birds Received by Mr. Gould from the Province of Quixos, Republic of Ecuador. *Ann. & Mag. Nat. Hist.*, Ser. 2, XVI, pp. 279-285.
This paper was previously published in the P. Z. S. for 1854, pp. 109-115. I quote only the earlier paper which contains one species, "*Formicivora cærulescens*," not mentioned in the later publication where, however, "*Gymnomystax*" of 1854 is entered as "*Gymnomystax mexicanus*."
1855. JARDINE, SIR WILLIAM. Prof. W. Jameson's Collections from the Eastern Cordillera of Ecuador. *Edinburgh New Phil. Jour.*, II, N. S., pp. 113-119.
Letters from Quito, (1) April 19, 1854, describing an attempt to reach Mindo (3,926 ft.); (2) November 22, 1854, describing a trip to the eastern Cordillera through Guaca, four days from Quito, "on good horses." The Andes were crossed east of Guaca over a pass 14,000 feet high, whence he evidently descended to the subtropics. Some 14 species are recorded of which *Tanager* [= *Compsocoma*] *nobtailis* and *Saltator* [= *Oreothraupis*] *arreonops* are described as new.
1856. JARDINE, SIR WILLIAM. Prof. W. Jameson's Collections from the Eastern Cordillera of Ecuador, continued. Expedition from Quito to the Mountain Cayambe. *Edinburgh New Phil. Jour.*, N. S., VI, pp. 90-92.
Description of the Guallabamba Cañon; remarks on *Tetragonops*; description of *Arremon leucopterus* from the eastern Cordillera and comments on several other species.
1857. JARDINE, SIR WILLIAM. Contributions to Ornithology. No. IV. *Edinburgh New Phil. Jour. N. S.*, V, 1857, pp. 255-257.
Recording three species contained in a small collection from the western Andes received from Prof. Jameson.
- 1858a. SCLATER, PHILIP LUTLEY. Notes on a Collection of Birds received by M. Verreaux, of Paris, from the R'io Napo in the Republic of Ecuador. *Proc. Zool. Soc. London*, pp. 59-77, pl. 132.
The collection was believed to have been made by M. Villavicencio, "lately resident at Puerto del Napo." It contained 174 species, of which "upwards of twenty" are described as new, among them several under MS. names supplied by Verreaux and Malherbe, though Sclater, through

the application of an illogical and unjust nomenclatural law is credited with their "discovery."

By far the larger number of the species listed are confined to the Tropical Zone.

- 1858b. SCLATER, PHILIP LUTLEY. List of Birds Collected by Mr. Louis Fraser at Cuenca, Gualaquiza, and Zamora in the Republic of Ecuador. *Proc. Zoöl. Soc. London*, 1858, pp. 449-461; pl. 145. 87 species.

Based on collections made at Cuenca during parts of October and November, 1857, and all of March, April, and May, 1858; and at Gualaquiza and Zamora during December, 1857, and January and February, 1858. Presumably, only a part of this time was devoted to field-work, since the whole collection contains only 87 species, of which 27 are recorded from Cuenca, 48 from Gualaquiza, and 30 from Zamora; 4 were found at both Cuenca and Gualaquiza, and 13 were common to Gualaquiza and Zamora. The total represents less than one-fifth of the avifauna of the region.

- 1858c. SCLATER, PHILIP LUTLEY. On the Birds Collected by Mr. Fraser in the Vicinity of Riobamba, in the Republic of Ecuador. *Proc. Zoöl. Soc. London*, pp. 549-556, pl. 146. 59 species.

"Besides collecting at Riobamba itself, Mr. Fraser made expeditions to several places in its vicinity, namely Guano, Pinipi [Penipe by Wolf], Matos, Titiacun, and Punin. Guano lies $1\frac{1}{2}$ leagues N. N. E. of Riobamba, Pinipi 4 leagues N. E. by E., and Matos a little more northwards, a league farther on. Titiacun is a league beyond Chambo, which lies 3 leagues E. S. E. of Riobamba, and is high up on the slopes of 'El Altar.' Mr. Fraser says that his shooting-ground here was within one league of perpetual snow. Punin is situated nearly due south of Riobamba and not more than 2 leagues distant from that city." Only 16 species were secured at Riobamba, 10 at Titiacun, 6 at Penipe, 5 above Punin and 2 at Guano, but the 35 species taken at Matos fairly represents its avifauna, which is that of the humid Temperate Zone.

- 1858d. SCLATER, PHILIP LUTLEY. On New Species of Birds from the Rio Napo, Republic of Ecuador. *Ann. & Mag. Nat. Hist.*, Ser. 3, II, pp. 144-150.

Sixteen species, including representatives of both Tropical and Sub-tropical Zones.

- 1859a. SCLATER, PHILIP LUTLEY. List of the First Collection of Birds made by Mr. Louis Fraser at Pallatanga, Ecuador, with Notes and Descriptions of New Species. *Proc. Zoöl. Soc. London*, pp. 135-147; Aves, pl. cliv.

102 species represented by 290 specimens, collected during part of August, the whole of September and October and part of November, 1858.

- 1859b. SCLATER, PHILIP LUTLEY. On Some New or Little-Known Birds from the Rio Napo, *Proc. Zoöl. Soc. London*, pp. 440, 441. 9 species.

The extent of the Rio Napo region is indicated by the fact that at least three of the species here recorded are characteristic of the humid Temperate Zone, and probably therefore came from an elevation of not less than 8,500 feet.

- 1860a. SCLATER, PHILIP LUTLEY. List of Additional Species of Birds Collected by Mr. Louis Fraser at Pallatanga, Ecuador, with Notes and Descriptions of New Species. *Proc. Zoöl. Soc. London*, pp. 59-73.

Adds 360 specimens and 59 species to the former collection of which 12 taken in November, 1858, at Chillanes, in the humid Temperate Zone above Pallatanga, were not found at Pallatanga. The total number of species recorded from Pallatanga is therefore 154, which fairly represents the avifauna of this station in the Subtropical Zone.

- 1860b. SCLATER, PHILIP LUTLEY. List of Birds Collected by Mr. Fraser in the Vicinity of Quito and During Excursions to Pichincha and Chimborazo with Notes and Descriptions of New Species. *Proc. Zoöl. Soc. London*, pp. 73-83, Aves, pl. clix.

Fifty-two species, of which 18 were taken at Panza (14,000 ft.) on Chimborazo, 19 at Lloa in the humid Temperate Zone southwest of Quito, 6 on Guaga Pichincha, 3 on Rucu Pichincha, 2 at Guápulo, near Quito, and 6 at Quito.

- 1860c. SCLATER, PHILIP LUTLEY. List of Birds Collected by Mr. Fraser in Ecuador at Nanegal, Calacali, Perucho, and Puellaro, with Notes and Descriptions of New Species. *Proc. Zoöl. Soc. London*, pp. 83-97; Aves, pl. clx.

One hundred and twenty-nine species, of which 76 were collected at Nanegal in February, 1859, 21 at Calacali in March, 10 and 16 respectively, at Puellaro and Perucho, in April, and 28 above Puellaro in April or May. All these stations are in the Quito region northwest and north of that city on the Pacific slope of the Andes.

- 1860d. SCLATER, PHILIP LUTLEY. List of Birds Collected by Mr. Fraser at Baba-hoyo in Ecuador, with Descriptions of New Species. *Proc. Zoöl. Soc. London*, pp. 272-290; Aves, pl. clxiv.

One hundred and thirty-four species; 395 skins collected from July 10 to September, 1859. This is the first paper on the bird-life of the Tropical Zone of Western Ecuador. It contains descriptions of 19 new species, none of which is among the common and more characteristic forms of this region.

- 1860e. SCLATER, PHILIP LUTLEY. List of Birds Collected by Mr. Fraser at Esmeraldas, Ecuador, with Descriptions of New Species. *Proc. Zoöl. Soc. London*, pp. 291-298.

Ninety-three species, 170 specimens, collected in October, November, and December, 1859. While this collection may represent the bird-life of the immediate vicinity of Esmeraldas, the subsequent work of Rosenberg, Miketta and Flemming, and Richardson, shows that it is far from representative of the avifauna of the Tropical Zone of northwestern Ecuador (see Hartert, 1898, 1902).

- 1860f. SCLATER, PHILIP LUTLEY. Descriptions of New Species of Birds Collected by Louis Fraser at Pallatanga, Ecuador. *Ann. & Mag. Nat. Hist.*, V, 1860, pp. 427-429. 8 species.

1869. LAWRENCE, GEORGE N. Catalogue of Birds from Puna Island, Gulf of Guayaquil, in the Museum of the Smithsonian Institution, Collected by J. F. Reeve. *Ann. Lyc. Nat. Hist.*, N. Y., IX, pp. 234-238. 21 species.

1871. ORTON, JAMES. Contributions to the Natural History of the Valley of Quito. No. 1. *Amer. Nat.*, V, No. 10, pp. 619-626; Birds, pp. 623-626.

The "Valley of Quito" as here understood is the entire interandine tableland from the Colombian boundary to Loja, an area "nearly three

hundred and fifty miles in length" and with an average width of forty miles. A nominal list of 184 species which the author believes to have been recorded from this region is presented. No definite data are given, and the inclusion of many subtropical forms and failure to distinguish between those of the humid and arid Temperate and Paramo Zones, which properly belong in the region treated, deprives this paper of any real scientific value.

1877. TACZANOWSKI, L. Liste des Oiseaux recueillis en 1876 au Nord de Pérou occidental par MM. Jelski et Stolzmann. P. Z. S., pp. 319-333; Supplement, pp. 744-754.

Records 127 species from Tumbez, on the right bank of the lower Rio Tumbez, Caracha and Santa Luzia on the northeastern side of the delta of this river; Lechugal on the Rio Zurumilla, and the Pozo de Lambedero in the forest near Lechugal.

There is also a list of 3 species from Palmal, four hours northeast of Lechugal. All these localities are north of the Rio Tumbez and are therefore within the limits assigned to this work.

1880. SCLATER, P. L., and SALVIN, O. On New Birds Collected by Mr. C. Buckley in Eastern Ecuador. Proc. Zool. Soc. London, pp. 155-161, pls. xvi, xvii.

Buckley made his headquarters at Sarayacu in the Tropical Zone southeast of Canelos on the Rio Bobonaza. With the aid of natives he amassed a collection of some 10,000 skins, referable to nearly 800 species. Obviously so large a number of species was not secured in the immediate vicinity of Sarayacu, and we learn from Sclater and Salvin that the birds were secured on the "upper branches of the Rio Pastaza and on the spurs lying between this stream and its affluent, the Bobonaza." I am told that the birds in this large collection were labeled by the dealer Gerard, Buckley's agent, after they reached London. Most of them are credited to Sarayacu, and this locality on a label attached to a skin from the Buckley collection is therefore to be accepted in a regional sense as any place at or near the settlement of this name and thence to the headwaters of the Rio Pastaza.

The obviously new species contained in the collection are described in this paper. The collection as a whole was never reported on but Salvin and Godman secured a "complete set" of skins, many of which are listed in the Catalogue of the British Museum.

In this connection it may be added that Buckley employed collectors (Illingworth and Villagomez) in western Ecuador whose specimens were also labeled in London. Not only are the localities attributed to them often misleading, but in some instances it is evident that specimens from Buckley in eastern Ecuador have been confused with those from his collectors in western Ecuador.

1882. PELZELN, AUGUST VON. Ueber eine Sendung von Säugethieren und Vögeln aus Ecuador. Verh. der K. K. Zool.-Bot. Gesells. Wien, Birds, pp. 444-448. 68 species.

A miscellaneous collection of birds from all life-zones. No distributional data are given and the paper has no value for the zoögeographer.

1883. BERLEPSCH, H. VON., et TACZANOWSKI, L. Liste des Oiseaux recueillis par MM. Stolzmann et Siemiradski dans l'Ecuador Occidental. P. Z. S., 1883, pp. 536-577; pl. 1.

An authoritatively annotated list of 216 species collected at Guayaquil, Yaguachi, Puente de Chimbo, and Cayandeled. Stolzmann was the first really good bird-collector to visit Ecuador. He secured not only a large number of specimens but made excellent reports on the country visited. The present paper contains descriptions of 6 new species, 11 new races, and records of 22 species before unknown from Ecuador.

1884. BERLEPSCH, HANS VON., et TACZANOWSKI, L. Deuxieme Liste des Oiseaux recueonillis dans l'Ecuador Occidental par MM. Stolzmann et Siemiradski P. Z. S., 1884, pp. 281-313; pl. xxiv.

A report on the further collections of Stolzmann (see 1883) brings the total number of species secured by him in western Ecuador up to 341. These were taken at Guayaquil, Yaguachi, Puente de Chimbo, Capatillo, Pedregal, Cayandeled, Alpachaca, Alausi, Bugnac, Yoyaxi, and La Union or Llagos. Brief descriptions are given of these localities, which range from sea-level to 9,000 feet in altitude.

1885. TACZANOWSKI, L., et BERLEPSCH, H. VON. Troisieme list des Oiseaux recueillis par M. Stolzmann dans l'Ecuadeur. P. Z. S., 1885, pp. 67-124, pls. vii, viii.

This report is based chiefly on Stolzmann's work in eastern Ecuador at Machay and Mapoto in the Subtropical Zone east of Baños, and at San Rafael in the Temperate Zone on the flanks of Tunguragua. There are descriptions of these localities and comparisons of them with others in western Ecuador. An annotated list of 289 species records, in the main, only species from the localities above named, but there are also some from Yaguachi, Chimborazo, Riobamba, and Baños.

An appendix (pp. 114-124) presents general considerations on the avifauna of western Ecuador.

1889. ALLEN, J. A. Notes on a Collection of Birds from Quito. Bull. A. M. N. H., II, pp. 69-76.

Seventy-nine species, 210 specimens. A collection of native-made skins purchased by the American Museum from Mr. L. Söderstrom. It contains species from all four life-zones and from both Pacific and Atlantic slopes. Many are without labels, some are labeled with a general locality which is not always correct (*e. g. Grallaria rufula*, is said to have come from the Rio Napo), for others a definite locality is given which in some instances is probably accurate in other obviously erroneous (*e. g. Ramphocelus icteronotus* and *Myiozetetes granadensis*, from "Quito," and *Trogon viridis*, a species of the Amazonian tropics, from "near Quito, Nov. 1881"). *Rupicola sanguinolenta* is recorded from Milligalli. I have therefore included references only to those species which seem to be accompanied by authentic data.

1892. WOLF, TEODORO. Geografía y Geología del Ecuador. Leipsig, Roy. 8vo. xii+671 pages; half-tones and 2 folding maps.

Whatever its field, no bibliography of Ecuador would be complete without reference to this invaluable work. In 1875, Wolf was appointed geologist to the Republic of Ecuador and had therefore prolonged and exceptional opportunities to pursue his studies of the geography and geology of the country. Sections of this book are devoted to the flora and fauna, but

it is important chiefly for its descriptions of physiographic and climatic conditions and especially for a colored folding map showing the distribution of vegetation.

While complete in itself, this work is accompanied by an admirable map of Ecuador on a scale of 1,445,000 measuring 42 by 78 inches, which has formed the basis of the map accompanying this work.

1898. HARTERT, ERNST. On a Collection of Birds from Northwestern Ecuador, Collected by W. F. H. Rosenberg. Nov. Zoöl., V, pp. 477-505, pls. 2, 3.

Lists 232 species of which, however, 40 were found only at Puente del Chimbo, east of Guayaquil, 5 only on the tableland chiefly in the region about Ibarra and Cayambe, and 12 are from the Subtropical Zone, leaving 139 for "northwestern" Ecuador, all from the humid Tropical Zone. With the exception of Fraser's limited work in the vicinity of Esmeraldas (Selater, 1860) this is our first report of the birds of this exceptionally rich region. The localities at which Rosenberg collected, with the number of species recorded from each, are as follows:

Cachaví, 77; Paramba, 64; Chimbo, 74; Cayambe, 33; Ibarra, 23; Lake Yaguarcocha, 6.

- 1899a. SALVADORI, T., and FESTA, E. Viaggio del Dr. Enrico Festa nell' Ecuador. Uccelli. Part 1. Passeres Oscines. Boll. Mus. Zoöl. ed Anat. Comp. Univ. de Torino. No. 357, Vol. XV, August 10, pp. 1-31. 165 species. See also Parts II and III.

- 1899b. SALVADORI, T., and FESTA, E. Viaggio del Dr. Enrico Festa nell' Ecuador. Uccelli. Part II. Passeres Clamatores. Boll. Mus. Zoöl. ed Anat. Comp. Univ. de Torino. No. 362, November 17. Vol. XV, pp. 1-34. 180 species. See also Parts I and III.

1900. SALVADORI, T. and, FESTA, E. Viaggio del Enrico Festa nell' Ecuador. Uccelli. Part III. Trochili-Tinami. Boll. Mus. Zoöl. ed Anat. Comp. Univ. Torino., Vol. XV, No. 368, pp. 1-54. Feb. 19, 1900. 266 species. See also Parts I and II.

The total number of species included in the three parts of this paper is 611, of which 15 are described as new, and 15 said to be therein recorded from Ecuador for the first time. Dr. Festa's collection contained 2892, specimens, of which the greater number were collected by himself and under his immediate supervision. When, however, he was in Quito he employed two native collectors, sending them to Nanegal, Intac, Pelagallo, Guailabamba, Chinguil, Lloa, and the slopes of Pichincha and Atacazo.

It is not surprising that these men did not realize the necessity of the extreme accuracy required in labeling specimens for locality in a region where a difference of a few hundred feet in altitude may lead from one life-zone to another. Many of the specimens recorded from the localities in which these two collectors worked are apparently correctly labeled, but, unfortunately, others are obviously erroneously labeled, and there is consequently a degree of uncertainty in regard to the data attached to these skins which robs them in large part of their scientific value. There are also specimens listed from Gualea which fall in the same category. It is not probable that such characteristic Temperate Zone birds as *Conirostrum fraseri*, *Buthraupis cucullata*, *Pæcilothraupis atricrissa*, *Buarremon assimilis*,

Pheucticus chrysogaster and particularly *Phrygilus ocularis*, *Agriornis solitaria*, *Myiotheretes striaticollis* and others came from the humid Sub-tropical forests of Nanegal. It is equally unlikely that *Myioborus bairdi*, *Hemipingus atripileus* or *Pseudocolaptes boissoneauti* came from Guala. It is regrettable that the high standard of Dr. Festa's own work should, in any degree be lowered by the inclusion of such misleading data, and it has seemed desirable to omit in my compilation of localities all reference to the specimens listed by Salvadori and Festa as from 'Nanegal' and 'Guala.' Specimens from the other localities at which his native worked alone seem to have been more accurately labeled, and I have included them in my compilation.

With the exception of the work of the American Museum, Festa's explorations are more extensive, prolonged, and productive than any which have been made in Ecuador. For use in connection with the references to the report on his collections, I append an outline of his itinerary.

Itinerary of Enrico Festa, 1895-98

Oct. 6, 1895, leave Guayaquil for Cuenca; *Oct. 28, 1895*, leave Cuenca for Sigsig; *Nov. 2, 1895*, Laguna di Kingora; *Nov. 11, 1895*, leave Sigsig for Gualaquiza; *Nov. 12, 1895*, Granadillas; *Nov. 13, 1895*, Rio San José; *Nov. 14, 1895*, arrive Gualaquiza; *Nov. 14, 1895*, to *July 18, 1896*, explorations on the Bomboiza, Zamora, and Santiago from Gualaquiza as a base; *July 23-26, 1896*, Laguna di Kingora; *July 27, 1896*, Sigsig; *July 28, 1896*, Cuenca; *July 28 to Nov. 25, 1896*, region about Cuenca; *Nov. 26, 1896*, Azogues; *Nov. 28, 1896*; Riobamba; *Nov. 29, 1896*, Lago de Colta; *Nov. 30, 1896*, Ambato; *Dec. 1, 1896*, leave Ambato; *Dec. 2, 1896*, Latacunga; *Dec. 3, 1896*, leave Latacunga 3 A.M.; *Dec. 3-26, 1896*, Quito, short trip to Chillo; *Dec. 26, 1896*, leave Quito, through Cotacallo to Malchingui; *Dec. 27, 1896*, leave Malchingui to Otavalo; *Dec. 28, 1896*, Otavalo through Hatuntaqui to Ibarra; *Dec. 29-31, 1896*, Ibarra—Lago Yaguarcocha.

Jan. 2-3, 1897, leave for Tulcan; *Jan. 4, 1897*, leave Tusa for Huaca, reach Tulcan; *Jan. 5-8, 1897*, Tulcan; *Jan. 7, 1897*, to Ipialis and return; *Jan. 9-11, 1897*, Huaca; *Jan. 12-27, 1897*, Tulcan, waiting word from Bogotá; *Jan. 28, 1897*, for Pun via Ipialis—prohibited; *Jan. 29, 1897*, for Pun through Huaca, through El Troje (3,050 meters)—flanks of Mt. Mirador; *Jan. 30-31, 1897*, to Pun; *Feb. 1, 1897*, forests of Pun; *Feb. 4-22, 1897*, Pun; *Feb. 23, 1897*, return to Tulcan; *Feb. 24 to March 1, 1897*, El Troje, 3,050 miles; *March 1-9, 1897*, Mirador; *March 10, 1897*, arrive Tulcan; *March 10-16, 1897*, Troje; *March 17, 1897*, leave Tulcan; *March 25-30, 1897*, Ibarra; *April 1, 1897*, leave Ibarra for Concepcion; *April 2-30, 1897*, temp. A.M., 19°-22°, rising to 27°-30° Cent., Subtropical to Paramo; *May 16, 1897*, arrive Ibarra; *May 20, 1897*, leave, night at Otavalo; *May 21, 1897*, leave Otavalo for Quito; *May 22, 1897*, arrive Quito; *May 23 to June 4, 1897*, Quito; *June 5, 1897*, leave Quito for Chaupi, arrive Machache; *June 16-17, 1897*, Chaupi, 3,200 meters, A.M. 4°-5°, rising to 10°-13° Cent.; *June 17, 1897*, flanks of Iliniza; *June 28-29, 1897*, to Tumbaco; *July 9, 1897*, in Quito, caring for collections; *July 9, 1897*, leaves Quito, night at Machache; *July 10, 1897*, leaves Machache to ranch of Valle-vicioso, 3,800 miles; *July 20, 1897*, leaves for Quito, night in Machache; *August 14, 1897*, leave Quito for coast; *August 15, 1897*, leave Machache;

August 16, 1897, reach Ambato; August 17, 1897, leave Ambato, night at Chuquipoquio; August 18, 1897, leave Totorillas, arrive Guaranda; August 19, 1897, leave Guaranda; San Miguel for night; August 20, 1897, leave San Miguel; night at Playas; August 21, 1897, Babahoyo; August 22, 1897, leave Babahoyo; August 23, 1897, arrive Guayaquil A.M.; Sept. 1, 1897, leave Guayaquil for Vines; Sept. 2-30, 1897, La Hacienda 'Vitalia' near Vines; Oct. 9, 1897, arrive Balzar; Oct. 10 to Dec. 27, 1897, region about Balzar and north to the Rio Peripa; Dec. 31, 1897, return to Guayaquil; Jan. 4, 1898, leave Guayaquil for Santa Elena; Jan. 5 to Feb. 9, 1898, Santa Elena and surrounding country.

- 1901-02. GOODFELLOW, WALTER. Results of Ornithological Journey through Colombia and Ecuador. The Ibis, Ser. 8, Vol. 1, pp. 300-319; 458-480; 699-715; map, fig. 29, pls. 8, 14; 1902, pp. 59-67; 207-232.

Based on a collection of about 4,000 skins, representing 544 Ecuadorean species, of which 437 are reported on in this paper, while 107, all Humming-birds, are treated in a separate publication by Oberholser (1902). The author, with his associate, Claud Hamilton, was resident in Ecuador from July, 1898, to August, 1899, and during this period worked at a number of stations between the Equator and one degree south latitude, representing all the life-zones from the humid Tropical Zone of western Ecuador to the same zone in eastern Ecuador. With few exceptions their specimens were all taken by themselves (Hamilton did most of the shooting, Goodfellow the skinning) and are accompanied by full data in regard to locality, and notes on the character of habitat as it affects distribution. The altitudes mentioned do not always agree with those presented by Wolf, and in such instances I have followed the latter. For example, Santo Domingo, according to Goodfellow, is at an altitude of 600 feet, while on Wolf's authority it is 1,640 feet (500 meters).

It is to be regretted that the collector could not have had the assistance of an experienced systematist in making his identifications. Freer use of trinomials and less strict adherence to the taxonomic standards of the 'Catalogue of Birds in the British Museum' would have given nomenclatural expression to those geographic variations which have so much significance to the zoögeographer.

Goodfellow's collection is now in the Rothschild Museum at Tring, where it has been examined by Dr. Hellmayr, to whom I am indebted for calling my attention to certain erroneous identifications in the published report. A list of the localities at which Goodfellow and Hamilton collected, with the dates of their visits to them, is appended.

July and August, 1898, Nanegal, Gualaea, and Intag, w. Ec.; September, 1898, Milligalli, Canzacota, and San Nicolas, w. Ec.; October, 1898, Santo Domingo de los Colorados, w. Ec.; November, 1898, chiefly spent on Pichincha and at Mindo; December, 1898, Valle de Viciosa, environs of Quito and Pichincha; January, 1899, Chillo Valley and neighborhood of Quito; February, 1899, Papallacta, e. Ec.; March, 1899, Baeza; April, 1899, Indian village of Archidona, at foot of the East Andes; May (first half), 1899, Suno, upper Rio Napo; May, June, and July, 1899, Rio Coca, upper Rio Napo; August (first fortnight), 1899, Rio Tiputini, Rio Napo.

1902. HARTERT, ERNST. Some Further Notes on the Birds of Northwest Ecuador. Nov. Zoöl., IX, pp. 599-617.

Eighty-nine species, most of them additions to the list of 1898. With the exception of two species from Ibarra and one from Chimbo, the birds recorded are chiefly from the humid Tropical Zone along the Rio Mira and Rio Lita, including 25 species from Paramba not included in the list of 1898.

1902. OBERHOLSER, HARRY C. Catalogue of a Collection of Hummingbirds from Ecuador and Colombia. Proc. U. S. Nat. Mus., XXIV, pp. 309-342.

One hundred and nine species and subspecies of which 197 were found in Ecuador. This collection of 1,136 specimens was made by Goodfellow and Hamilton and was purchased by the United States National Museum. Dr. Oberholser's paper really, therefore, forms part of Goodfellow's report on his and Hamilton's work in Ecuador and Colombia. (See Goodfellow, 1901-02.)

Heretofore much of our knowledge in regard to Ecuadorean Hummingbirds was based on native-made skins, often inaccurately labeled or without labels, and the work of Goodfellow and Hamilton added greatly to our definite knowledge of the species of a family which finds its center of abundance in the Andes of Ecuador and Colombia.

1907. SIMON, E. Liste des Trochilides Observés par M. de Dr. Rivet dans La Republique de l'Ecuador. Bull. du Mus. d'Hist. Nat. Paris, pp. 16-23.

Fifty-three species; all the skins are said to be labeled with locality, altitude, and date, but it is evident that errors have occurred, doubtless in connection with native-made skins. *Lafresnaya saul*, for example, a Temperate Zone species, is recorded from "Napo."

1908. MENEGAUX, A. Etude d'une Collection d'Oiseaux de l'Equateur donnée au Museum d'Histoire Naturelle. Bull. Soc. Phil. Paris, pp. 84-100.

A collection of 60 specimens, representing 47 species, presented by M. Gonnessiat, Director of the Observatory at Quito. The collection was, presumably, native-made, and the data accompanying the skins are in many instances incorrect, species being recorded from "Quito" which are confined to the Subtropical, or even Tropical Zone (e. g. *Tripsurus pucherani*, *Electron platyrhynchum*). There are references and a bibliography, all of which are included in the author's later and more important paper (1911).

1909. FESTA, E. nel Darien E nell' Ecuador. Diario di Viaggio di un Naturalista. Corso Raffaello, 28. Torino. 8vo. xvi+397 pages; maps and illustrations. Narrative of a journey lasting from October 6, 1895, to January 5, 1898. Many references to birds (see Salvadori and Festa, 1899-1900).

1911. MENEGAUX, A. Etude des Oiseaux de l'Equateur. Rapportés par le Dr. Rivet, dans Mission du Service Geographique de l'Armee pour la Mesure d'un Arc de Meridien Equatorial en Amerique du Sud. Sous le Controle Scientifique de l'Academie des Sciences de France, 1899-1906. Zoölogie, Tome IX, pp. 1-128; pls. 1-4.

An important paper based primarily on the 885 specimens of 290 species secured by Dr. Rivet, chiefly on the Pacific slopes from Quito to Santo Domingo. These figures include 53 species of Hummingbirds which, having been made the subject of a special paper by Simon (1907), are not treated

here. The author also includes 27 specimens from the Napo region brought back by Capt. Perrier of the Mission, 52 from "Quito" bought by M. Baer, and 111 duplicates from the Museum of Quito given by M. Gonnessiat (see also Menegaux, 1908). The collections made by Dr. Rivet are accompanied by full data of value to the zoögeographer. Those obtained by the other gentlemen above mentioned are evidently composed of native-made skins, and the localities whence they are said to have come are often obviously erroneous (e. g. *Pharomachrus antisensis*, *Thamnistes æquatorialis*, *Myrmotherula menetriesi*, *Mastus corunulatus*, *Basileuterus tristriatus*, and other Tropical and Subtropical Zone birds are recorded from "Quito"; *Andigena laminirostris* of western Ecuador is given from the "Napo," and *Acropternis orthonyx infuscatus* of the Temperate Zone is recorded from the "Haut Napo").

References are presented to the works of other writers on Ecuadorean birds, there is a bibliography and interesting comparative distributional lists.

1912. RHOADS, SAMUEL N. Birds of the Paramo of Central Ecuador. The Auk, XXIX, pp. 141-149. Notes on 16 species with a strongly drawn sketch of their haunts.

1917. CHAPMAN, FRANK M. The Distribution of Bird-Life in Colombia: A Contribution to a Biological Survey of South America. Bull. A. M. N. H., XXXVI, 1917. x+729 pages; maps, plates, and cuts.

While treating of Ecuadorean birds only incidentally, this volume is devoted primarily to a study of the origin of Andean bird-life and is therefore a companion to the present volume. The distributional list includes only the 1,285 species and subspecies collected or observed by the American Museum's expeditions.

1919. CHUBB, CHARLES. Notes on Collections of Birds in the British Museum from Ecuador, Peru, Bolivia, and Argentina. Part I. Tinamidæ-Rallidæ, Ibis, pp. 1-55, pl. 1, figs. 2. Part II. Podicipediformes-Accipitriformes, *Ibid.*, pp. 256-290.

Based mainly on the collections of Perry O. Simons who collected in Ecuador, chiefly in the southern part, from November, 1898, to July, 1899; and also on a collection made by Walter Goodfellow in the region from Guala to Baeza in 1914. 35 species. The orthography of the collecting stations needs thorough revision.

1922. LÖNNBERG, EINAR and RENDAHL, HIALMAR. A Contribution to the Ornithology of Ecuador. Arkiv. för Zoöl. Utgivet av K. Svenska Vetens-Kapskad. Band 14, No. 25, 1922, pp. 1-87.

Critical treatment of some 436 species and subspecies contained in a collection of birds presented to the Zoölogical Museum of Stockholm by Ludovic Söderstrom, Swedish Consul at Quito. The specimens were collected by natives, and to the data supplied by them Mr. Söderstrom adds more exact information in regard to locality, altitude, and general or seasonal distribution. For the greater part the statements in regard to locality are correct, or approximately so, but lacking any understanding of the need for absolute exactness in labeling, the data given by native collectors cannot be accepted too literally. In some instances the errors are

obvious: e. g. "*Conurus leucophthalmus*" and *Ostinops alfredi*, eastern Ecuadorean species which are here recorded from western Ecuador. Again, a specimen of *Momotus equatorialis* is recorded from Gualea, but native collectors to whom I showed a specimen of this species in Quito said that it was not found in the Gualea region, and Mr. Söderstrom assured me that he now believes the specimen to have been labeled "Gualea" erroneously. Inaccuracies of this kind cast a suspicion on all records which do not conform to the normal and thereby prevent papers based on native-made collections from adding much that is new to existing information in regard to distribution.

The present collection was made chiefly in the Quito region and adjoining western Subtropical Zone area (Mindó, Gualea, and Nanegal), but contains also some specimens from eastern Ecuador, chiefly from about Baeza. Few exclusively tropical species are represented, and this fact, in connection with the native hunters' predilection for brightly colored or conspicuous birds, doubtless accounts for the small representation of Formicariidæ in this collection, only 3 of the 110 or more Ecuadorean species and races of this family being included in it.

In an introduction of a dozen pages the authors present interesting tabular analyses of the distribution of the species treated and discuss the problem of their zonal distribution; their conclusions agreeing essentially with those of Chapman (Bull. A. M. N. H., XXXVI, 1917) and Todd and Carriker (Ann. Carn. Mus., XIV, 1922).

ADDENDA

Page 34: *The Eastern Division of the Tropical Zone*.—Since this work was sent to the printer we have received large collections made by the Olallas at the entrance of the Curaray into the Napo. This locality is beyond our limits (see p. 4) and its bird-life does not throw much additional light on the problems of zonal life. It is not necessary, nor is it possible, to report at length on these collections here, but among the species not before represented in our collections from the Ecuadorean region are specimens of *Opisthocomus hoazin*, *Agamia agami*, *Cochlearius cochlearius*, *Cairina moschata*, *Phalacrocorax vigua*, *Ara ararauna*, *Ara macao*, *Aratinga weddelli*, *Amazona amazonica*, *Amazona ochrocephala*, *Pharomachrus pavoninus*, *Galbalcyrhynchus leucotis*, *Jacamerops aurea*, *Monasa flavirostris*, *Monasa nigrifrons*, *Chelidoptera tenebrosa*, *Chloronerypes chrysochloris capistratus*, *Chrysoptilus punctigula guttatus*, *Celeus citreopygius*, *Celeus grammicus*, *Myrmochanes hemileuca*, *Thamnocharis dignissima*, *Pitangus lictor*, *Cotinga porphyrolæma*, *Atticora fasciata*, *Chlorophanes spiza*, *Thlypopsis sordida amazona*, and others.

Among the species apparently not before recorded from the Ecuadorean area are *Zebrius undulatus*, *Malacoptila rufa*, *Furnarius minor* and *F. torridus*.

Four specimens of *Thamnocharis dignissimus* (one from the Rio Curaray, three from the mouth of the Lagarto Cocha, further up the Rio Napo), heretofore known only from the two examples sent by Buckley from "Sarayacu," show that this bird belongs in the Tropical, and not as I had supposed, Subtropical Zone.

Page 86: *Peruvian Extension of the Western Division of the Subtropical Zone*.—In approaching the Paucal region where he is now (July, 1926) at work, Mr. Harry Watkins made a small collection at Chugur. This locality is at an elevation of 9,000 feet on the Pacific slope about 50 miles northwest of Cajamarca. We have as yet received neither photographs nor descriptions from Mr. Watkins, but the 206 birds which have arrived indicate that the locality is at the border of the Subtropical and humid Temperate Zones. Representing the first-named are *Veniliornis oleagineus*, *Automolus ruficollis* (see beyond), *Diglossa personata*, *Chlorospingus piurae* (heretofore known only from Palambla, Peru), *Tangara argentea*, *Sporathraupis cyanocephala* and others, while among the characteristic humid Temperate Zone forms are *Pseudocolaptes*

boissonneauti, *Oropezus* (a very distinct new species, nearest to *O. rufula*), *Buarremon assimilis*, *Pæcilothraupis palpebrosa* and *Pipraidea melanonota*.

So far as our information goes, Chugur is the most southern place on the Pacific coast at which these species occur, and it marks, therefore, the known southern end of the West Peruvian Extension of the Sub-tropical Zone. We await now with increased interest the receipt of collections from the fuller development of this zone which I believe will be found in the Paucal region.

Page 127: After a field experience in the Santa Marta mountains of Colombia and adjoining Goajira peninsula, J. Alden Mason's remarks on the relation between altitude and differentiation among native races indicate that the same distributional laws apply with equal truth to man and birds. He says, in part: "In the United States, variations in these environmental conditions, though great, are never sudden and abrupt, with the result that the boundaries of material culture areas are never sharp-cut and variations from group to group are slight. In other parts of America, however, and especially in western South America, abrupt changes in altitude produce natural environmental areas of the greatest divergence within the space of relatively few miles, and these, in turn, have produced, or at any rate support, native populations of widely different character." (Natural History, 1926, p. 31.)

Page 374: *Melanopareia elegans*.—I have examined the following material in the British Museum:

Peru: Otuzco (4,000 ft.), 2♂, 1♂ juv.; Platanar (4,000 ft.), 1♂, 1♀; San Pablo, Cajamarca, 1♂, 1♀; Truxillo, 1♀.

Ecuador: Puna Is., 2♂, 3♀; Balzar, 1♂ im., 1♀.

The characters shown by these specimens confirm my belief in the distinctness of *paucalensis* but do not settle the status of *speciosa*, though the variations shown by the Puna Island specimens indicate that they are not separable from true *elegans*. The fact that the Balzar female (which is doubtless the one mentioned by Dr. Hellmayr) has the crown less black than average specimens of *elegans elegans* evidently induced Dr. Hellmayr to discredit the character of the olivaceous crown which distinguishes *paucalensis*.

Page 443: *Automolus ruficollis celicæ* Chapm.—Comparison with three topotypical specimens of Taczanowski's *ruficollis* from Chugur, above Paucal, shows that the bird described by me as *Automolus celicæ* is not synonymous with *ruficollis*, but represents a well-marked race of it; dis-

tinguished by its brighter, more ochraceous coloration, particularly above, paler tail and maxilla. Eight specimens from Palambla and El Tambo, Peru, in their slightly darker colors, show an approach to *ruficollis ruficollis*.

Page 510: *Myiozetetes similis pacifica* Chapm.—Dr. Hellmayr calls my attention to the fact that the name for this form should be *Myiozetetes similis grandis* Lawr. (Proc. Acad. Nat. Sci. Phila., 1871, p. 234, "Prov. Tumbes, Peru.")

Page 699: Of *Lamprosar tanagrinus* (Spix) there are 19 specimens from the Rio Curaray which, in connection with two in the Lawrence collection labelled "Napo," leave little doubt of the occurrence of this species within the limits covered by this work (see p. 4).

INDEX TO VOLUME LV

- abbreviatus, Ramphastos, 345.
 abeillei, Arremon, 7, 630.
 aburri, Aburria, 156.
 Penelope, 156.
 Aburria, 156.
 acadicus, Empidonax, 523.
 Acanthylis, 279.
 Accipiter, 324.
 Accipitriformes, 219.
 accipitrinus, Asio, 243.
 Acestrura, 324.
 Acknowledgments, 5.
 Acrochordopus, 501.
 acrophila, Ochthoeca, 477.
 Acropternis, 374.
 Actitis, 197.
 Actodromas, 199.
 acutipennis, Chordeiles, 276.
 Hapalocercus, 493.
 Myiosympotes, 493.
 acutirostris, Xenops, 451.
 acutus, Chordeiles, 276.
 Adelomyia, 314.
 adspersa, Ortalis, 155.
 aenea, Alcedo, 270.
 Chloroceryle, 270.
 Glaucis, 284.
 ænigma, Sapayoa, 538.
 æquatorialis, Aglaeactis, 309.
 Amaurospiza, 614.
 Anæretes, 495.
 Androdon, 283.
 Asio, 243.
 Athenes, 437.
 Calliste, 657.
 Campylopterus, 289.
 Capito, 343.
 Cerchneis, 240.
 Ceryle, 270.
 Chordeiles, 276.
 Ciccaba, 248.
 Cistothorus, 568.
 Daenis, 644.
 Dendroica, 594.
 Dendroica, 462.
 Dysithamnus, 386.
 Erismatura, 212.
 Eubucco, 343.
 Falco, 240.
 Gouldia, 327.
 Gymnopathys, 402.
 Herpsilochmus, 395.
 Hirundo, 554.
 Hypoxanthus, 359.
 Lepidocolaptes, 466.
 Lesbia, 321.
 Malacoptila, 357.
 Molothrus, 697.
 Momotus, 272; distribution of, 126.
 Neomorphus, 339.
 Penelope, 153.
 Petrochelidon, 558.
 Phaiolaima, 303.
 Picolaptes, 466.
 Pithys, 402.
 Popelairia, 327.
 Psolidoprymna, 321.
 Rallus, 174.
 Rhopoterpe, 410.
 Rhynchocyclus, 484.
 Rupicola, 547.
 Sarcorhamphus, 216.
 Siptornis, 437.
 Sittasomus, 56, 461.
 Spermophila, 611.
 Spizitornis, 495.
 Sporophila, 611.
 Tangara, 657.
 Thamnistes, 385.
 Thamnophilus, 385.
 Xiphorhynchus, 462.
 æquinoctialis, Craspedoprion, 483.
 Cyclorhynchus, 483.
 Dendroica, 41.
 Rhynchocyclus, 483.
 æstiva, Dendroica, 593.

- æstiva, Motacilla, 593.
 Pyranga, 676.
 æthereus, Cyanolesbia, 320.
 Phaëthon, 215.
 æthiops, Oryzoborus, 607.
 Thamnophilus, 381.
 affinis, Cacicus, 693.
 Fuligula, 211.
 Glaucis, 284.
 Marila, 211.
 Nyroca, 211.
 agami, Agamia, 206, 736.
 Ardea, 206.
 Agamia, 206, 736.
 agilis, Anæretes, 495.
 Campias, 365.
 Euscarthmus, 496.
 Spizitornis, 496.
 Veniliornis, 365.
 Vireosylvia, 587.
 Aglæactis, 309.
 Agriornis, 471
 aguia, Geranoaëtus, 226.
 Agyrtria, 290.
 Ajaia, 204.
 ajaja, Ajaia, 204.
 Platalea, 204.
 alamosis, Compsocoma, 670.
 alarum, Compsothlypis, 593.
 alaudinus, Phrygilus, 128, 627.
 alba, Eudocimus, 204.
 Guara, 204.
 Ibis, 204.
 Scolopax, 204.
 Tringa, 199.
 Albatrosses, 182.
 albicans, Troglodytes, 569.
 albicaudatus, Buteo, 226.
 Tachytiorchis, 226.
 albiceps, Buarremon, 636.
 Elænia, 506.
 Pogonospiza, 65, 636.
 albicincta, Hemiprocne, 279.
 Streptoprocne, 279.
 albicollis, Acanthylis, 279.
 Caprimulgus, 277.
 Eucometis, 682.
 Falco, 234.
 Legatus, 509.
 albicollis, Leucopternis, 234.
 Nyctidromus, 277.
 Saltator, 618.
 albicrissa, Anthoscenus, 324.
 Floricola, 324.
 Heliomaster, 324.
 albidior, Automolus, 445.
 albidiventer, Leptopogon, 499.
 albidiventris, Cinclodes, 117, 425.
 albifrons, Conirostrum, 642.
 Muscisaxicola, 480.
 Pithys, 401.
 albigula, Myrmotherula, 393.
 albigularis, Corethrura, 178.
 Creciscus, 178.
 Falco, 240.
 Heterocnemis, 574.
 Microcerculus, 574.
 Sclerurus, 452.
 Synallaxis, 432.
 Tyranniscus, 505.
 albilatera, Diglossa, 639.
 albilateralis, Diglossa, 639.
 albilinea, Chlorœnas, 163.
 Columba, 162.
 Iridoprocne, 554.
 Petrochelidon, 554.
 albilora, Muscisaxicola, 481.
 Polioptila, 559.
 albiloris, Grallaria, 420.
 albinuchalis, Thamnophilus, 384.
 albipectus, Pyrrhura, 259.
 Thryothorus, 564.
 albipennis, Penelope, 154.
 albirostris, Dryocopus, 367.
 albitarse, Syrnum, 247.
 alhitarsus, Ciccaba, 247.
 albitorques, Erator, 539.
 Tityra, 539.
 albibentris, Cinclodes, 425.
 Hemidacnis, 643.
 Hirundo, 554.
 Iridoprocne, 554.
 Pipraëdea, 643.
 Rhamphocœnus, 560.
 Turdus, 580.
 albivitta, Aulacorhynchus, 350.
 Pteroglossus, 350.
 albivittus, Aulacorhamphus, 350.

- albociliaris, Saltator, 615.
- albo cinereus, Sirystes, 512.
- albo cristata, Sericossypha, 684.
- albo cristatus, Tanagra, 684.
- albo grisea, Serpophaga, 509.
- albo griseus, Pachyrhamphus, 543.
- albo gularis, Ciccaba, 247.
 - Platyrrhynchus, 482.
 - Platytriccus, 482.
 - Schistes, 323.
 - Syrnium, 247.
- albo lineatus, Lepidocolaptes, 467.
- Alcedinidæ, 268.
- alfredi, Cassicus, 692.
 - Ostinops, 692.
- aliciæ, Hylocichla, 584.
 - Turdus, 584.
- alinæ, Ornismya, 312.
 - Vestipedes, 312.
- alixi, Clytactantes, 386.
- Allocotopterus, 533.
- alpina, Muscisaxicola, 8, 480.
 - Tænioptera, 480.
- alticola, Amazilia, 294.
- altissima, Chætura, 279.
 - Streptoprocne, 279.
- alutus, Mecocerculus, 478.
- amabilis, Juliomyia, 291.
 - Polyerata, 291.
 - Trochilus, 291.
- amaryllis, Lesbia, 321.
- Amaurolimnas, 177.
- Amaurospiza, 614.
- Amazilia, 292.
- amazilia, Amazilia, 293.
- Amazona, 262, 736.
- amazona, Alcedo, 268.
 - Ceryle, 268.
 - Chloroceryle, 268.
- Amazonian Fauna, 43.
- amazonica, Amazona, 263, 736.
 - Chrysotis, 263.
- amazonicus, Capito, 342.
 - Psittacus, 263.
- amazonina, Pionopsitta, 266.
- amazonum, Ateleodacnis, 645.
 - Heteropelma, 537.
 - Thlypopsis, 683, 736.
- amazonus, Scotothorus, 537.
- amazonus, Sittasomus, 460.
- ambigua, Ara, 254.
- ambiguus, Ramphastos, 345.
- Amblycercus, 695.
- American Museum's Expeditions, 14;
 - Summary of the, 19.
- americana, Alcedo, 269.
 - Ceryle, 269.
 - Chloroceryle, 269.
 - Mycteria, 204.
- americanus, Coccyzus, 336.
 - Cuculus, 336.
 - Falco, 220.
 - Ibycter, 220.
- amethysticollis, Heliangelus, 315.
- amethystina, Calliphlox, 325.
- amethystinus, Trochilus, 325.
- Ammodramus, 624.
- Ampelioides, 548.
- anais, Petasophora, 300.
- analís, Formicarius, 412.
 - Scytalopus, 373.
- analoides, Catamenia, 613.
- Anatidæ, 209.
- anatum, Falco, 239.
- Ancistrops, 449.
- Andalucia Pass, Low elevation of, 44.
- Andes, as field for zonal studies, 4;
 - Influence of elevation of, on distribution of life, 43; on climate, 45.
- andicola, Agriornis, 471.
 - Leptasthenura, 428.
- Andigena, 347.
- andina, Cerchneis, 241.
- andinus, Empidonax, 526.
- andium, Nettion, 210.
 - Querquedula, 210.
- Androdon, 58, 283.
- angelæ, Cyanolyca, 702.
- angelica, Dacnis, 644.
- angustifrons, Cassicus, 692.
 - Myrmoborus, 408.
 - Ostinops, 692.
- Anhima, 209.
- Anhimidæ, 209.
- Anhimiformes, 209.
- Anhinga, 214.
- anhinga, Anhinga, 214.

- anHINGA, Plotus, 214.
 Anhingidae, 214.
 ani, Crotophaga, 340.
 Anis, 336.
 annectens, Pseudomyiobius, 489.
 Pseudotriccus, 489.
 Anseriformes, 209.
 antarcticus, Podiceps, 181.
 Podilymbus, 181.
 Rallus, 175.
 Antbirds, 131, 379.
 Anthony, Harold E., Acknowledgment
 to, 6; collections by, 15.
 anthonyi, Setopagis, 278.
 Anthoscenus, 324.
 anthracina, Urubitinga, 233.
 Anthracothorax, 300.
 Anthus, 604.
 antillarum, Sterna, 187.
 antisensis, Cranioleuca, 435.
 Pharomachrus, 328.
 Synallaxis, 435.
 Trogon, 328.
 Anurolimnas, 177.
 Aphriza, 192.
 apicalis, Agyrtria, 291.
 Chionomesa, 291.
 Thaumatias, 291.
 Apocryptornis, 424.
 Appendix, 703.
 approximans, Cercomacra, 399.
 aquila, Eutoxeres, 288.
 Fregata, 215.
 Trochilus, 288.
 Ara, 253, 736.
 Aramidæ, 202.
 Aramides, 175.
 Aramus, 202.
 aranea, Gelochelidon, 185.
 Sterna, 185.
 ararauna, Ara, 253, 736.
 Psittacus, 253.
 Aratinga, 257.
 arcangelica, Dacnis, 644.
 Archiplanus, 694.
 arcuata, Ampelis, 548.
 Cotinga, 548.
 Euchlornis, 548.
 Pipreola, 548.
 arcuatum, Laniisoma, 548.
 arcuatus, Ampelio, 548.
 Ampelion, 548.
 Ardea, 205.
 Ardeidae, 205.
 Ardeiformes, 203.
 ardens, Phœnisoma, 677.
 Piranga, 677.
 ardesiaca, Conopophaga, 377.
 Fulica, 111, 179.
 ardesiacus, Contopus, 524.
 Dysithamnus, 389.
 ardosiac, Tyrannula, 524.
 ardosiacus, Myiochanes, 524.
 Arenaria, 190.
 arenaria, Calidris, 499.
 argentata, Heterocnemis, 405.
 Sclateria, 405.
 argentatus, Herpsilochmus, 405.
 argentea, Calliste, 666.
 argenticinctus, Momotus, 56, 272.
 Argicus, 356.
 argyrotis, Penelope, 154.
 Arremon, 629.
 Arremonops, 626.
 arremonops, Oreothraupis, 690.
 Saltator, 690.
 Asio, 243.
 assimilis, Automolus, 443.
 Buarremon, 635, 736.
 Hyloctistes, 443.
 Megaquiscalus, 41.
 Quiscalus, 700.
 Tanagra, 635.
 Trogon, 331.
 Trogonurus, 331.
 Asthenes, 437.
 Astur, 223.
 Asturina, 231.
 atala, Chlorostilbon, 296.
 Ateleodacnis, 645.
 ater, Cassidix, 696.
 aterrima, Diglossa, 638.
 Pyriglena, 401.
 Atlapetes, 631.
 atrata, Cathartes, 217.
 atricapilla, Chlorophanes, 646.
 Dacnis, 647.
 Tanagra, 666.

- atricapillus, Lanio, 679.
 Orchilus, 492.
 Pachyrhamphus, 543.
 atricaudus, Myiobius, 515.
 atricilla, Larus, 188.
 atricollis, Trogon, 333.
 atricrissa, Pœcilothraupis, 667.
 atrifrons, Myiodynastes, 513.
 Tyrannus, 513.
 atrigularis, Metallura, 317.
 atrimentalis, Phœthornis, 287.
 atrinucha, Thamnophilus, 381.
 atripennis, Fluvicola, 479.
 Saltator, 617.
 atripileus, Chlorospingus, 686.
 atrirostris, Cyclarhis, 592.
 Dendrocinclá, 458.
 Dendrocops, 458.
 atrocastaneus, Ostinops, 692.
 atrocyaneum, Conirostrum, 642.
 atrogularis, Cercomacra, 400.
 atronitens, Volatinia, 614.
 atropileus, Arremon, 686.
 Hemispingus, 686.
 atrosericus, Turdus, 579.
 atrovirens, Ostinops, 692.
 Attagis, 189.
 Atticora, 555, 736.
 Attila, 546.
 audax, Myiodynastes, 512.
 Aulacorhynchus, 350.
 aura, Cathartes, 217.
 aurantiacus, Metopothrix, 438.
 aurantiivertex, Heterocercus, 538.
 auratus, Bucco, 342.
 Capito, 342.
 aurea, Alcedo, 353.
 Jacamerops, 353, 736.
 Rupicola, 547.
 aureinucha, Dacnis, 647.
 Iridophanes, 648.
 aureiventris, Pheucticus, 605.
 aureofastigatum, Chalcostigma, 318.
 aureola, Dendroeca, 594.
 aurescens, Clytolama, 303.
 Polyplancta, 303.
 Trochilus, 303.
 aureus, Veniliornis, 363.
 auricapilla, Pipra, 531.
 auriceps, Calurus, 328.
 Pharomachrus, 328.
 Trogon, 328.
 auricularis, Basileuterus, 600.
 Geothlypis, 596.
 Troglodytes, 571.
 auriculata, Zenaida, 165.
 auritus, Heliothryx, 323.
 Trochilus, 323.
 aurovirens, Bucco, 341.
 Capito, 341.
 aurulenta, Calliste, 657.
 Calospiza, 657.
 australis, Amblycercus, 695.
 Rhynchortyx, 161.
 Automolus, 443, 736, 737.
 axillaris, Aramides, 41, 175.
 Herpsilochmus, 395.
 Thamnophilus, 395.
 azara, Hiaticula, 193.
 Piranga, 677.
 Saltator, 617.
 Synallaxis, 430.
 azuay, Asthenes, 437.
 Siptornis, 437.
 badus, Craspedoprion, 483.
 baeza, Geotrygon, 172.
 baezæ, Basileuterus, 600.
 Compsocoma, 671.
 Veniliornis, 365.
 bairdi, Heteropygia, 199.
 Myioborus, 598.
 Myiodynastes, 513.
 Saurophagus, 513.
 Setophaga, 598.
 bairdii, Actodromas, 199.
 Pisobia, 199.
 balteatus, Campylorhynchus, 563.
 balzarensis, Geranospizias, 223.
 Bangs, Outram, acknowledgments to, 6.
 bangsi, Calospiza, 659.
 Tangara, 659.
 Bangsia, 669.
 barbacoæ, Hylopezus, 422.
 barbata, Muscicapa, 515.
 Penelope, 154.
 barbatus, Myiobius, 515.
 Barbets, 341.

- baroni, *Eutoxeres*, 289.
 Metallura, 317.
 Phœthornis, 285.
 Thryophilus, 565.
 barrabandi, *Caica*, 267.
 Eucinetus, 267.
 Pionopsitta, 267.
 Psittacus, 267.
 barroti, *Heliothryx*, 323.
 Ornismya, 323.
 barroviana, *Cathartes*, 217.
 Bartramia, 198.
 Baryphthengus, 270.
 Basileuterus, 599.
 beldingi, *Pagolla*, 193.
 Bell-birds, 538.
 bellicosa, *Sturnella*, 698.
 Trupialis, 107, 698.
 bellus, *Myiophobus*, 520.
 benjamini, *Trochilus*, 313.
 Urosticte, 313.
 berlepschi, *Catharus*, 584.
 Cercomacra, 400.
 Chætocercus, 326.
 Columba, 164.
 Crypturus, 148.
 Dacnis, 645.
 Henicorhina, 572.
 Mitrephanes, 522.
 Myrmeciza, 404.
 Myrmelastes, 404.
 Phœthornis, 286.
 Pipra, 530.
 Pyriglena, 400.
 Sipia, 400.
 Thamnophilus, 383.
 bernardi, *Hypolophus*, 384.
 Sakesphorus, 384.
 Thamnophilus, 384.
 Berry, Edward W., on Glaciation, 119.
 Bibliography, 723.
 bicolor, *Accipiter*, 225.
 Anas, 210.
 Dendrocygna, 210.
 Microcerculus, 575.
 Sparvius, 225.
 bidentatus, *Falco*, 238.
 Harpagus, 238.
 bilineata, *Culicivora*, 559.
 bilineata, *Polioptila*, 559.
 bipartitus, *Phrygilus*, 627.
 Bird-Life of the Arid Tropical Zone, 62;
 distribution of Genera of, 64;
 distribution of Species of, 64.
 Bird-Life of the humid Tropical Zone, 46;
 distribution of Genera of, 46-49;
 distribution of Species, 51-54;
 Genera of Eastern unknown in
 Western, 50; Genera of Western,
 unknown in Eastern, 49.
 Bird-Life of the Tropical Zone, 42;
 distributional relationships of, 42.
 Birds described as new, list of, 137.
 Bird-skins, native, from Bogotá, in Rio
 Janeiro, from Ecuador, 7, 10, 11.
 bistriatus, *Burhinus*, 71.
 Bitterns, 205.
 bivittatus, *Basileuterus*, 601.
 blackburniæ, *Dendroica*, 594.
 Rhimamphus, 594.
 Sylvicola, 594.
 Boatbills, 205.
 bogotensis, *Anthus*, 604.
 Asio, 118, 243.
 Columba, 164.
 Contopus, 525.
 Porphyrion, 119.
 Sicalis, 624.
 Boissonneaua, 310.
 boissonneaui, *Anabates*, 438.
 Pseudocolaptes, 438, 736.
 boliviana, *Calliste*, 660.
 Colospiza, 660.
 Columba, 168.
 Grallaricula, 422.
 Tangara, 660.
 bolivianus, *Trogon*, 334.
 Trogonurus, 334.
 bombus, *Chætocercus*, 325.
 Polyxemus, 325.
 bonapartei, *Nothocercus*, 147.
 Poospiza, 65, 625.
 bonariensis, *Molothrus*, 697.
 Tanagra, 697.
 borealis, *Nuttallornis*, 524.
 Tyrannus, 524.
 Bataurus, 208.
 bougainvillii, *Carbo*, 213.

- bougainvillii, *Phalacrocorax*, 213.
 bougueri, *Trochilus*, 302.
 Urochroa, 302.
 Bourcier, Jules, *Studies of Trochilidæ*, 9.
 bourcieri, *Calliste*, 654.
 Capito, 343.
 Chlorochrysa, 654.
 Eubucco, 343.
 Geotrygon, 172.
 Oreopeleia, 172.
 Phœthornis, 287.
 Trochilus, 287.
 Bourciera, 305.
 bouvronides, *Pyrrhula*, 611.
 Sporophila, 611.
 Brachygalba, 353.
 brachyptera, *Elænia*, 507.
 brachyrhynchus, *Colymbus*, 180.
 Brachypiza, 626.
 brachytarsus, *Myiochanes*, 526.
 brachyura, *Acanthylis*, 280.
 Buteola, 231.
 Chætura, 280.
 Muscicapa, 389.
 Myrmotherula, 389.
 Synallaxis, 432.
 brachyurus, *Buteo*, 231.
 Graydidascalus, 264.
 Pachynus, 264.
 Psittacus, 264.
 bracteatus, *Nyctibius*, 273.
 branickii, *Leptosittaca*, 259.
 Odontorchilus, 564.
 Odontorhynchus, 564.
 Theristicus, 203.
 brasiliana, *Parula*, 592.
 Strix, 251.
 brasilianum, *Glaucidium*, 251.
 brasilianus, *Phalacrocorax*, 213.
 brasiliense, *Tigrisoma*, 208.
 brevauris, *Asio*, 119.
 brevicauda, 421.
 Muscigralla, 481.
 brevipes, *Tachyphonus*, 681.
 brevirostris, *Campylorhynchus*, 563.
 Chrysura, 295.
 Craspedoprion, 483.
 Heleodytes, 563.
 Hypoxanthus, 359.
 brevirostris, *Oryzoborus*, 607.
 brooki, *Automolus*, 442.
 Penelope, 153.
 Brotogeris, 261.
 brunnea, *Dendrocincla*, 457.
 Nonnula, 358.
 brunneicapillus, *Microtriccus*, 503.
 Ornithion, 503.
 Tyrannulus, 503.
 brunneicaudalis, *Synallaxis*, 431.
 brunneicaudis, *Synallaxis*, 431.
 brunneiceps, *Cistothorus*, 568.
 brunneifrons, *Ochthoeca*, 473.
 brunneinucha, *Conopophaga*, 378.
 Embernagra, 635.
 brunneinuchus, *Buarremon*, 90, 635;
 map showing distribution of, 91.
 brunneitorques, *Chætura*, 281.
 Cypseloides, 281.
 brunneiventris, *Diglossa*, map showing
 distribution of, 118.
 brunnescens, *Margarornis*, 454.
 Premnoplex, 454.
 brunneus, *Sclerurus*, 452.
 Buarremon, 635, 736.
 Bubo, 244.
 Bubonidæ, 243.
 Bucco, 353.
 Bucconidæ, 353.
 Buckley, C., *Collections by*, 12.
 buckleyi, *Chamæpelia*, 167.
 Colibri, 300.
 Diphlogæna, 306.
 Erator, 540.
 Laniisoma, 538.
 Micrastur, 221.
 Odontophorus, 159.
 Ptilochloris, 538.
 Tityra, 540.
 buenavistæ, *Chloronerpes*, 361.
 bulunensis, *Hylophilus*, 589.
 Pachysylvia, 589.
 Burhinus, 202.
 Buteo, 226.
 Buthraupis, 668.
 Butorides, 207.
 cabanisi, *Alcedo*, 269.
 Ceryle, 269.

- cabanisi, *Chloroceryle*, 269.
 cachabiensis, *Thamnophilus*, 401.
 cachaviensis, *Geotrygon*, 172.
 cacinans, *Falco*, 236.
 Herpetotheres, 236.
 Cacicus, 693.
 Cænotriccus, 490.
 cærulea, *Ardea*, 205.
 Cereba, 646.
 Eucephala, 295.
 Florida, 205.
 cæruleiceps, *Momotus*, distribution of,
 126.
 cæruleocephala, *Aglaia*, 661.
 Calliste, 661.
 Tangara, 661.
 cærulescens, *Chlorophanes*, 647.
 Diglossopsis, 641.
 Formicivora, 397.
 Geranospiza, 223.
 Geranospizias, 223.
 Pœcilothraupis, 668.
 Sparvius, 223.
 Cairina, 209.
 cajamarcæ, *Thamnophilus*, 38.
 cajanea, *Aramides*, 176.
 Fulica, 176.
 californicus, *Pelecanus*, 215.
 caligatus, *Chrysotrogon*, 334.
 Trogon, 334.
 calipareus, *Podiceps*, 180.
 callinota, *Formicivora*, 397.
 Terenura, 397.
 calliparæa, *Chlorochrysa*, 654.
 Calliphlox, 325.
 callogenys, *Aratinga*, 258.
 Conurus, 258.
 callonotus, *Chloronerpes*, 364.
 Dendrobates, 363.
 Eleopicus, 363.
 Picus, 363.
 Veniliornis, 40, 363.
 Calochætæ, 676.
 calophrys, *Hypothlypis*, 653.
 Tanagrella, 653.
 caloptera, *Formicivora*, 478.
 calopterus, *Aramides*, 176.
 Mecocerculus, 478.
 Campptostoma, 503.
 Campylopterus, 289.
 cana, *Tanagra*, 672.
 canadensis, *Muscicapa*, 596.
 Myiodioides, 596.
 Wilsonia, 596.
 cancrinus, *Platytricus*, 482.
 candidissima, *Ardea*, 205.
 Egretta, 205.
 canescens, *Odontophorus*, 160.
 caniceps, *Euscarthmus*, 487.
 Saltator, 617.
 canigularis, *Chlorospingus*, 684.
 Tachyphonus, 684.
 capipileus, *Chloronerpes*, 360.
 cantator, *Hypocnemis*, 407.
 Canutus, 199.
 canutus, *Canutus*, 199.
 Tringa, 199.
 capensis, *Brachyospiza*, 626.
 Bucco, 353.
 Zonotrichia, 626.
 capistratus, *Chloronerpes*, 360, 736.
 Chloropicus, 360.
 capitale, *Todirostrum*, 487.
 capitalis, *Chrysomitris*, 621.
 Spinus, 621.
 Thamnophilus, 383.
 Capito, 341.
 Capitoniæ, 341.
 Caprimulgidæ, 275.
 Capsiempis, 500.
 caquetæ, *Brachygalba*, 353.
 Ortalis, 155.
 Caracaras, 219.
 carbo, *Lanius*, 675.
 Ramphocelus, 675.
 caripensis, *Steatornis*, 267.
 carolina, *Porzana*, 177.
 carolinensis, *Falco*, 243.
 Pandion, 243.
 carolinus, *Rallus*, 177.
 Carpodectes, 552.
 carrikeri, *Formicarius*, 412.
 carunculata, *Aburria*, 156.
 carunculatus, *Ibycter*, 220.
 Milvago, 220.
 Phalcobæus, 220.
 Case, George B., Acknowledgments to, 5.
 Casmerodias, 205.

- Cassidix, 696.
 cassini, Mitrospingus, 682.
 cassinii, Tachyphonus, 682.
 castanea, Grallaria, 418.
 Haploptila, 358.
 Malacoptila, 358.
 castaneiceps, Basileuterus, 600.
 Buarremon, 631.
 Lysurus, 631.
 Porzana, 177.
 castaneifrons, Ara, 256.
 castaneiventris, Spermophila, 609.
 Sporophila, 609.
 castaneotincta, Lathria, 544.
 castaneus, Crypturus, 148.
 Tinamus, 148.
 castanotis, Pteroglossus, 349.
 castelnaudi, Glyphorhynchus, 455.
 castelnaui, Picumnus, 370.
 Catamblyrhynchidæ, 604.
 Catamblyrhynchus, 604.
 Catamenia, 613.
 catharinæ, Calospiza, 659.
 Tangara, 659.
 Cathartes, 217.
 Cathartidæ, 216.
 Cathartiformes, 216.
 Catharus, 584.
 Catoptrophorus, 195.
 caucæ, Ammodramus, 624.
 caudata, Drymophila, 396.
 Formicivora, 396.
 cayana, Ampelis, 551.
 Cotinga, 551.
 Dacnis, 643.
 Lanius, 538.
 Piaya, 337.
 Tityra, 538.
 cayanus, Hoploxypterus, 191.
 cayanensis, Cymindis, 238.
 cayennensis, Elainia, 509.
 Harpiprion, 204.
 Hirundo, 281.
 Leptodon, 238.
 Myiozetetes, 510.
 Nyctanassa, 207.
 Panyptila, 281.
 Tantalus, 204.
 ceciliæ, Chloronerpes, 365.
 Eleopicus, 366.
 Mesopicus, 366.
 Veniliornis, 366.
 cela, Cacicus, 693.
 Oriolus, 693.
 Celeus, 366, 736.
 celicæ, Atlapetes, 633.
 Automolus, 443, 737.
 Ceophlæus, 369.
 Cephalopterus, 553.
 cephalotes, Myiarchus, 527.
 Cerchneis, 240.
 Cercomacra, 397.
 cerulea, Dendroica, 594.
 cervinicauda, Threnetes, 283.
 cervinigularis, Phaiolaima, 303.
 Ceryle, 268.
 Chachalacas, 151.
 Chæmepelia, 165.
 Chætocercus, 325.
 Chætura, 280.
 chalcœcephala, Galbula, 352.
 chalcophterus, Pionus, 265.
 Psittacus, 265.
 Chalcostigma, 318.
 chalcothorax, Galbula, 353.
 chalybea, Hirundo, 555.
 Progne, 555.
 Chalybura, 299.
 Chamæpetes, 157.
 Chamæza, 413.
 chapadensis, Sittasomus, 460.
 Chapin, James P., Acknowledgments
 to, 6.
 Chapman, Frank M., Collections by,
 15, 16, 19, 20, 21; on Life-Zones
 in the Urubamba Valley, 32.
 chapmani, Columba, 163.
 Cænenas, 163.
 Charadriidæ, 190.
 Charadriiformes, 189.
 Charadrius, 193.
 Chelidoptera, 47, 359, 736.
 cheriway, Falco, 219.
 Polyborus, 219.
 Cherrie, George K., Acknowledgment
 to, 6; accident to, 6; collections
 by, 15, 16, 19, 20, 21.
 chiguanco, Turdus, 583.

- Chile, Characters of, 3.
 chilensis, *Aglais*, 655.
 Calospiza, 655.
 Phoenicopterus, 209.
 Tangara, 655.
 chimborazensis, *Attagis*, 189.
 chimborazo, *Trochilus*, 301.
 chionurus, *Trogon*, 334.
 Chiroxiphia, 534.
 chivi, *Sylvia*, 586.
 Vireosylva, 586.
 Vireosylva, 587.
 Chlidonias, 185.
 Chlorestes, 295.
 chlorion, *Piprites*, 534.
 chlorocephala, *Thalurania*, 297.
 Chloroceryle, 268.
 Chlorochrysa, 654.
 Chloronerpes, 360.
 chloronota, *Buthraupis*, 669.
 Muscicapa, 498.
 Pipromorpha, 498.
 Chlorophanes, 646, 736.
 Chlorophonia, 648.
 chlorophrys, *Basileuterus*, 601.
 Chloropipo, 533.
 chloropoda, *Phaëtusa*, 185.
 Sterna, 185.
 chloroptera, *Ara*, 254.
 chloropygius, *Totanus*, 196.
 Chlorospingus, 684, 736.
 Chlorostilbon, 296.
 Chlorothraupis, 678.
 chocoana, *Cyanerpes*, 646.
 Chondrohierax, 238.
 chopi, *Aphobus*, 699.
 Chordeiles, 275.
 christiani, *Dendrocincla*, 458.
 chrysocephalus, *Icterus*, 699.
 Megarhynchus, 513.
 Myiodynastes, 513.
 Oriolus, 699.
 chrysogaster, *Basileuterus*, 601.
 Megarhynchus, 514.
 Pheucticus, 605.
 Pitylus, 605.
 chrysoma, *Arremonops*, 626.
 Embernagra, 626.
 Tanagra, 653.
 chrysopsis, *Nemosia*, 683.
 chrysoptera, *Pipra*, 534.
 chrysopterus, *Masius*, 534.
 chrysops, *Tyranniscus*, 505.
 Tyrannulus, 505.
 Chrysoptilus, 361, 736.
 chrysotis, *Calliste*, 665.
 Tangara, 665.
 Chrysotrogon, 334.
 Chrysuronia, 295.
 chubbi, *Cichlopsis*, 577.
 chunchotambo, *Xiphorhynchus*, 464.
 Ciccaba, 247.
 Cichlopsis, 577.
 Ciconiidae, 204.
 Cinclodes, 425.
 cinchoneti, *Conopias*, 511.
 Tyrannus, 511.
 Cinclidae, 576.
 Cinclus, 576.
 cincta, *Ampelis*, 548. •
 Dichrozona, 406.
 cinctus, *Ampelio*, 548.
 Ampelion, 548.
 Cyphorhinus, 406.
 Rhynchortyx, 161.
 cineracea, *Sayornis*, 522.
 cinerascens, *Cercomacra* 397.
 Formicivora, 397.
 Rhynchops, 187.
 cinerea, *Ampelis*, 544.
 Atticora, 555.
 Elania, 509.
 Euscarthmus, 494.
 Lathria, 544.
 Piezorhina, 608.
 Serpophaga, 494.
 cinereiceps, *Tyranniscus*, 504.
 Tyrannulus, 504.
 cinereifrons, *Elania*, 508.
 cinereiventris, *Microbates*, 561.
 Myrmotherula, 394.
 Rhamphocænus, 561.
 cinereum, *Todirostrum*, 486.
 cinereus, *Camarhynchus*, 608.
 Circus, 220.
 Crypturus, 148.
 Tetrao, 147.
 Todus, 486.

- cinnamomea, Neopipo, 536.
 Pipra, 536.
 Tringa, 197.
 cinnamomeigula, Automolus, 446.
 cinnamomeiventris, Muscicapa, 475.
 Ochthoeca, 475.
 cinnamomeus, Furnarius, 7, 424, 526.
 Myiobius, 517.
 Pachyrhamphus, 542.
 Picolaptes, 424.
 Totanus, 197.
 cinnamomina, Cerchneis, 241.
 Cinnicerthia, 562.
 Circus, 220.
 Cirrihipira, 532.
 cissiura, Spathura, 313.
 cissiurus, Ocreatus, 313.
 Cissopis, 690.
 Cistothorus, 4, 568; map showing Andean
 distribution of, 108.
 citrea, Motacilla, 592.
 Protonotaria, 592.
 citreopygius, Celeus, 366, 736.
 citrinifrons, Ochthoeca, 473.
 clamator, Bubo, 243.
 Rhinoptynx, 243.
 Claravis, 167.
 Classification, Remarks on, 134.
 climacocerca, Hydropsalis, 277.
 Climatic conditions, 26.
 climazura, Fluvicola, 479.
 Clypeicterus, 690.
 Clytactantes, 386.
 Cnemarchus, 471.
 Cnemoscopus, 686.
 Cniparchus, 369.
 Cnipodectes, 515.
 coccineus, Calochætes, 676.
 Euchætes, 676.
 Coccyca, 338.
 Coccyzes, 336.
 Coccyzus, 336.
 cochlearia, Cancroma, 207.
 Cochlearius, 207, 736.
 cochlearius, Cochlearius, 207, 736.
 cocoi, Ardea, 205.
 celestis, Agapornis, 260.
 Cyanolesbia, 320.
 Cynanthus, 320.
 celestis, Psittacula, 260.
 Tanagra, 672.
 Thraupis, 672.
 Cœreba, 637.
 cœrebicolor, Dacnis, 643.
 Cœrebidæ, 637.
 Colibri, 299.
 collaris, Bucco, 353.
 Charadrius, 193.
 Hiaticula, 193.
 Trogon, 332.
 Trogonurus, 332.
 Collectors, Native, 10.
 Colombia, Characters of, 3.
 Colombian-Pacific Fauna, Boundaries,
 35; map of, 38; birds of, 54, 58,
 69-73; evolution in, 130.
 colombiana, Merganetta, 212.
 colombianus, Neocrex, 178.
 colona, Colonia, 479.
 Colonia, 479.
 colonus, Copurus, 479.
 Muscicapa, 479.
 Columba, 162.
 columbarius, Falco, 240.
 Hypotriorchis, 240.
 columbiana, Certhiola, 637.
 Chrysomitris, 623.
 Fulica, 179.
 Helianthea, 306.
 Lampropygia, 306.
 Phœthornis, 286.
 columbianus, Carduelis, 623.
 Crypturus, 150.
 Mionectes, 496.
 Myiozetetes, 510.
 Philydor, 446.
 Spinus, 623.
 Columbidae, 162.
 Columbiformes, 162.
 Colymbus, 180.
 compressirostris, Xiphocolaptes, 464.
 Compsocoma, 669.
 Compsothlypis, 88, 592.
 comptus, Atlapetes, 632.
 Buarremon, 632.
 concolor, Amaurolimnas, 177.
 condensinii, Eutoxeres, 288.
 Trochilus, 288.

- Condors, 216.
 Conirostrum, 641.
 connectens, Formicarius, 411.
 Grallaria, 419.
 connivens, Myiozetetes, 510.
 Conopias, 511.
 Conopophaga, 377.
 Conopophagidæ, 377.
 conradi, Turdus, 583.
 consobrina, Formicivora, 396.
 Microrhopias, 396.
 Tangara, 661.
 consobrinus, Automolus, 446.
 Philydor, 446.
 contempta, Strix, 253.
 Tyto, 253.
 conversi, Popelairea, 327.
 Coots, 174.
 Copurus, 479.
 Coraciiformes, 267.
 coracina, Pipra, 531.
 coracinus, Entomodestes, 578.
 Myiadestes, 578.
 Coragyps, 217.
 corallinus, Pionus, 264.
 Cormorants, 213.
 Cornalia, Aemilio, work of, 9.
 cornuta, Anhimas, 209.
 Palamedea, 209.
 coronata, Harpyia, 235.
 Muscicapa, 514.
 Pipra, 532.
 coronatus, Basileuterus, 601.
 Harpyhaliaëtus, 235.
 Myiodioctes, 601.
 Onychorhynchus, 514.
 Placostomus, 483.
 Platyrrhynchus, 483.
 coronulatus, Masius, 534.
 corpulenta, Urosticte, 314.
 Corvidæ, 700.
 corvinus, Thamnophilus, 403.
 Corythopsis, 378.
 costaricensis, Grallaricula, 423.
 Heleodytes, 563.
 Cotinga, 551.
 Cotingas, 538, 736.
 Cotingidæ, 538.
 Cowbirds, 690.
 Cozumel Island, bird-life of, 117.
 Cracidæ, 151.
 Cranioleuca, 435.
 Craspedoprion, 483.
 crassirostris, Bubo, 244.
 Euphonia, 652.
 Xiphocolaptes, 466.
 crassus, Atlapetes, 634.
 Crax, 151.
 Creagrus, 187.
 creatopus, Puffinus, 183.
 Creciscus, 177.
 Creurgops, 681.
 crissalis, Pheucticus, 605.
 cristata, Lophostrix, 246.
 Ostinops, 691.
 Penelope, 153.
 Strix, 246.
 Tanagra, 680.
 cristatus, Cacicus, 691.
 Tachyphonus, 680.
 Crocethia, 199.
 croconotus, Icterus, 699.
 Psarocolius, 699.
 Crotophaga, 340.
 Crows, 700.
 cruenta, Querula, 553.
 cruentatus, Melanerpes, 362.
 Picus, 362.
 Tripsurus, 362.
 cruentus, Coryphospingus, 629.
 Rhodospingus, 7, 629.
 Tiaris, 629.
 cruziana, Chæmepelia, 166.
 Columba, 166.
 Columbula, 166.
 Eupelia, 40.
 crypterythrus, Myiobius, 520.
 Myiophobus, 520.
 cryptolopha, Lathria, 544.
 cryptoxanthus, Myiobius, 521.
 Myiophobus, 521.
 Crypturus, 147.
 Cuckoos, 336.
 Cuculidæ, 336.
 cucullata, Buthraupis, 668.
 Tanagra, 668.
 culminatus, Ramphastos, 347.
 cumanensis, Crax, 155.

- cumanensis, Pipile, 155
 cuneatus, Glyphorhynchus, 455.
 cunicularia, Phleoptynx, 250.
 Speotyto, 250.
 cupreicauda, Trogonurus, 333.
 cupripennis, Aglaeactis, 309.
 Trochilus, 309.
 Curassows, 151.
 curtata, Cranioleuca, 436.
 curucui, Trogon, 333.
 Trogonurus, 333.
 Curucujus, 335.
 curvirostris, Nothoprocta, 151.
 cuvieri, Ramphastos, 345.
 cuzcoensis, Spizitornis, 495.
 cyanea, Diglossa, 639.
 Streptoceryle, 268.
 cyaneocapilla, Pipra, 532.
 Cyanerpes, 645.
 cyanicollis, Calliste, 661.
 cyanocephala, Aglaia, 674.
 Sporathraupis, 674, 736.
 Tanagra, 674
 Cyanocompsa, 606.
 Cyanocorax, 700.
 cyanoides, Coccothorus, 606.
 Cyanocompsa, 606.
 Guiraca, 606.
 cyanolæmus, Aulacorhynchus, 351.
 Cyanolesbia, 319.
 cyanoleuca, Atticora, 556.
 Hirundo, 556.
 Pygochelidon, 556.
 Cyanolyca, 701.
 cyanops, Sula, 214.
 cyanoptera, Compsocoma, 670.
 Tanagra, 672.
 Querquedula, 211
 cyanopterus, Pterophanes, 309
 Trochilus, 309.
 cyanopygia, Calliste, 662.
 Calospiza, 662.
 Tangara, 662.
 cyanotis, Calliste, 663.
 Petasophora, 299
 cyanotus, Colibri, 299.
 Trochilus, 299
 cyanura, Butorides, 207
 Lesbia, 320
 cyanurus, Cynanthus, 320.
 Cyclarhis, 590.
 Cyclorhynchus, 483.
 Cymbilaimus, 379.
 cypereti, Rallus, 41, 174.
 Cyphorhinus, 406.
 Cypseloides, 281.
 Dacnis, 643.
 dactylatra, Sula, 214.
 Dafila, 210.
 daguæ, Turdus, 580.
 Damophila, 295.
 daphne, Chlorostilbon, 297.
 Darters, 214.
 darwini, Tanagra, 674.
 Thraupis, 674.
 Data, Scope of, 143.
 debilis, Turdus, 581.
 decolor, Leptotila, 168.
 Deconychura, 85, 461.
 decumanus, Ostinops, 691; map of range
 of, 48.
 Xanthornus, 691.
 deiroleucus, Falco, 240.
 delatrii, Tachyphonus, 681.
 deliciosa, Pipra, 533.
 deliciosus, Alcocotopterus, 533.
 Machæropterus, 533.
 delphinae, Colibri, 299.
 Ornismya, 299.
 Petasophora, 299.
 Dendrocincla, 456.
 Dendrocolaptes, 470.
 Dendrocolaptidæ, 455.
 Dendrocops, 457.
 Dendrocygna, 210.
 Dendroica, 593.
 Dendrornis, 462.
 derbianus, Aulacorhynchus, 350.
 derbyi, Engyete, 312.
 Eriocnemis, 312.
 Trochilus, 312.
 Vestipedes, 312.
 De Ronde, Philip, Acknowledgments to, 5.
 destructus, Formicarius, 412.
 devillei, Brotogeris, 262.
 Drymophila, 395.
 Spizaëtus, 236.

- devronis, *Callirhynchus*, 607.
 Neorhynchus, 607.
 diadema, *Catamblyrhynchus*, 604.
 dichrous, *Cyphorhinus*, 574.
 Rhinorchilus, 574.
 Dichrozona, 406.
 Diglossa, 4, 637, 736.
 dignissima, *Thamnocharis*, 12, 415, 736.
 dignus, *Chloronerpes*, 365.
 Diomedea, 184.
 Diphogena, 306.
 Dippers, 576.
 discolor, *Dendrocygna*, 210.
 discors, *Anas*, 210.
 Cyanoptera, 210.
 Querquedula, 210.
 Dives, 699.
 doliatus, *Thamnophilus*, 382.
 Dolichonyx, 697.
 dominica, *Anas*, 212.
 dominicanus, *Larus*, 189.
 dominicensis, *Burhinus*, 71.
 Progne, 555.
 dominicus, *Nomonyx*, 212.
 Podiceps, 180.
 dorsalis, *Automolus*, 445.
 dresseri, *Atlapetes*, 633.
 Carenochrous, 633.
 Doryfera, 281.
 Doves, 162.
 Dromococeyx, 340.
 dryas, *Catharus*, 585.
 Malacocichla, 585.
 Drymophila, 395.
 dubusi, *Leptotila*, 170.
 Dubusia, 672.
 dubusia, *Iridornis*, 666.
 Ducks, 209.
 dumerili, *Ornismya*, 292.
 dumerilii, *Amazilia*, 7.
 Amizilis, 292.
 dumerilli, *Amazilia*, 292.
 Dwight, Jonathan, Acknowledgments to,
 6; loan of specimens by, 7.
 Dyott, Capt. G. M., on Mt. Sumaco,
 18, 96.
 Dysithamnus, 386.
 dysoni, *Bucco*, 354.
 Ecuador, Characters of, 3; part of,
 treated, 4; Physiography of, 23;
 Sections through, 22, 23, 24.
 ecuadoriensis, *Rupornis*, 231.
 edward, *Saucerottia*, 292.
 Trochilus, 292.
 edwardsi, *Bangsia*, 669.
 Buthraupis, 669.
 egregia, *Dacnis*, 644.
 Egretta, 205.
 egretta, *Ardea*, 205.
 Casmerodias, 205.
 Elænia, 506.
 Elanoides, 237.
 elata, *Sylvia*, 504.
 elatus, *Tyranniscus*, 504.
 Electron, 271.
 elegans, *Colaptes*, 359.
 Melanopareia, 374; map of distribu-
 tion of group of, 70, 737.
 Synallaxis, 374, 428.
 elegantior, *Synallaxis*, 428.
 emiliæ, *Calliste*, 658.
 Phoebastria, 284.
 Trochilus, 284.
 Empidochanes, 522.
 Empidonax, 523.
 Ensifera, 308.
 ensifera, *Ensifera*, 308.
 Ornismya, 308.
 ensiferus, *Trochilus*, 308.
 Entomodestes, 578.
 Environment, as factor in promoting
 evolution 129, 132.
 Equatorial Arid Fauna: Boundaries, 37;
 map of, 38; birds of, 62; char-
 acters of, 40; migration in, 40;
 species of in Marañon Valley, 69;
 autochthonous species of, 72.
 equifasciatus, *Veniliornis*, 364.
 Erator 539.
 Erismatura, 212.
 erithacus, *Liosceles*, 374.
 Sittasomus, 461.
 erythrocephalus, *Hylocryptus*, 440.
 erythrocnemius, *Accipiter*, 224.
 erythrogaster, *Hirundo*, 555.
 erythrogenys, *Conurus*, 257.
 erythromelas, *Piranga*, 676.

- erythronotus, Buteo, 105, 227
 Haliaeetus 227.
 Philydor, 447.
 erythropareia, Geotrygon, 173.
 Oreopeleia, 173.
 erythrophthalma, Anas, 211
 Marila, 211
 erythrophthalmus, Coccyzus, 337.
 Cuculus, 337.
 erythropters, Cranioleuca, 436.
 Leptopogon, 500.
 Odontophorus, 159.
 Synallaxis, 436.
 erythroptera, Ortalida, 155.
 Ortalis, 56, 155.
 Phlegopsis, 410.
 erythropterus, Anabates, 447.
 Formicarius, 410
 Philydor, 447.
 erythropterygia, Dendroornis, 463.
 erythropterygius, Cnemarchus, 471.
 Myiotheretes, 471.
 Pteroglossus, 349.
 Taniptera, 471.
 erythrorhynchus, Arremon, 630.
 Erythrothlypis, 58, 682.
 erythrura, Myrmotherula, 391.
 erythrurus, Myiobius, 517.
 esmeraldae, Lepidocolaptes, 467.
 Tityra, 539.
 etesiaca, Sula, 215.
 Eubucco, 343.
 Euchlornis, 548.
 Eucinetus, 266.
 Eucomets, 682.
 Eugenia, 305.
 euophrys, Pheugopedius, 567.
 Thryothorus, 567.
 Euphonias, 648.
 euryptera, Opisthroptera, 319.
 eurypterus, Trochilus, 319.
 Eurypyga, 203.
 Eurypygidæ, 203.
 euryzonus, Merula, 579.
 Turdus, 579
 Euscarthmus, 487
 Eutoxeres, 288.
 excellens, Tapera, 340.
 excelsior, Cinclodes, 425.
 excelsior, Upucerthia, 425.
 exiguus, Momotus, distribution of, 126.
 exilis, Creciscus, 177.
 Rallus, 177.
 exortis, Heliangelus, 316.
 Trochilus, 316.
 exsul, Chlorophanes, 646.
 Myrmeciza, 403.
 fagani, Chamæpetes, 157.
 falcatus, Campylopterus, 289.
 Trochilus, 289
 Falco, 239.
 Falconidæ, 219.
 Falcons, 219.
 Families of Ecuadorean birds, list of, 139.
 Families, Zonal distribution of, 121.
 fannia, Calothorax, 324
 fanny, Aglaia, 661.
 Myotis, 324
 Ornismya, 324.
 Tangara 661.
 fannyi, Thalurania, 298.
 Trochilus, 298
 fasciata, Atticora, 555, 736.
 Hirundo, 555.
 Muscicapa, 520.
 fasciaticollis, Mionectes, 497.
 fasciiventris, Pulsatrix, 245.
 fasciatus, Cymbilaimus, 379.
 Heleodytes, 563.
 Myiophobus, 520.
 fedoa, Limosa, 194.
 Scolopax, 194.
 felicianæ, Damophila, 7, 295.
 Juliamyia, 295.
 Ornismya, 295.
 ferox, Glaucidium, 252.
 Muscicapa, 527.
 Myiarchus, 527.
 ferruginea, Erismatura, 212.
 ferrugineifrons, Hylophilus, 589.
 Pachysylvia, 589.
 ferrugineum, Glaucidium, 251.
 Festa, E., Explorations and collections
 by, 12.
 Feyer, E., on effects of eruption on
 Tunguragua, 120.
 filicauda, Cirrhipipra, 532.

- filicauda*, *Copurus*, 479.
Pipra, 532.
 Finches, 605.
 Plush-capped, 604.
 Finfeet, 180.
 Flamingos, 209.
flammea, *Strix*, 253.
flammeus, *Asio*, 244.
flammulata, *Asthenes*, 437.
 Siptornis, 438.
 Synallaxis, 437.
flammulatus, *Anabates*, 442.
 Thripadectes, 442.
flaveola, *Sycalis*, 623.
flavescens, *Boissonneauauxia*, 310.
 Panoplit, 310.
flavicans, *Myiobius*, 518.
 Myiophobus, 518.
flavicapilla, *Chloropipo*, 533.
 Pipra, 533.
flavicrissus, *Cacicus*, 693.
 Cassiculus, 693.
flavidicollis, *Saltator*, 617.
flavidifrons, *Tyrannulus*, 505.
flavigastra, *Cotyle*, 559.
flavigula, *Chloronerpes*, 360.
 Picus, 360.
flavigularis, *Chlorospingus*, 685.
 Pipilopsis, 685.
flavipes, *Scolopax*, 196.
 Totanus, 196.
flavirostris, *Amblycercus*, 695.
 Chlorophonia, 649.
 Grallaria, 422.
 Grallaricula, 422.
 Monasa, 358, 736.
 Pteroglossus, 349.
flaviventer, *Dacnis*, 644.
flavotectus, *Rhynchocyclus*, 485.
flavovirens, *Buarremon*, 685.
 Chlorospingus, 685.
flavoviridis, *Vireo*, 586.
 Vireosylva, 586.
flavus, *Craspedoprion*, 483.
flemmingi, *Dysithamnus*, 387.
Florisuga, 290.
fluviatilis, *Agyrtria*, 291.
 Thaumatias, 291.
Fluvicola, 479.
 Flycatchers, 471.
foetens, *Cathartes*, 217.
 Gracula, 553.
foetidus, *Gymnoderus*, 553.
 Forests, Distribution of, 25.
forficatus, *Elanoides*, 237.
Formicariidæ, 379.
Formicarius, 410.
formosa, *Pipreola*, 550.
fortis, *Myrmeciza*, 403.
 Pernostola, 403.
francescæ, *Calliste*, 661.
franklini, *Larus*, 188.
 Fraser, Alice K., Assistance by, proofs read and Index by, 6.
 Fraser, Louis, collections by, 11.
fraseri, *Basileuterus*, 56, 602.
 Celeopicus, 366.
 Conirostrum, 641.
 Glaucis, 283.
 Oreomanes, 641.
 Threnetes, 283.
frater, *Herpsilochmus*, 395.
 Troglodytes, 571.
Fregata, 215.
Fregatidæ, 215.
Fringillidæ, 605.
frontalis, *Hemispingus*, 688.
 Hylophilus, 688.
 Nonnula, 358.
 Ochthoeca, 473.
 Pipreola, 549.
 Synallaxis, 428.
 Tyrannula, 473.
frontata, *Aratinga*, 257.
fruticicola, *Synallaxis*, 428.
fulgidigula, *Bourcieria*, 306.
 Helianthea, 306.
Fulica, 179.
fulica, *Colymbus*, 180.
 Heliornis, 180.
fuliginata, *Dacnis*, 645.
fuliginosa, *Schizoeaca*, 426.
 Synallaxis, 426.
fulva, *Dendrocygna*, 210.
fulvescens, *Herpetotheres*, 236.
fulvicauda, *Muscicapa*, 603.
fulvicaudus, *Basileuterus*, 603.
fulviceps, *Euscarthmus*, 492.

- fulviceps, *Hapalocercus*, 492.
 fulvigula, *Calospiza*, 666.
 Tangara, 666.
 fulvigularis, *Malacoptila*, 357.
 Myiobius, 517.
 Terenotriccus, 517.
 fulvipectus, *Craspedoprion*, 484.
 Cyclorhynchus, 484.
 Rhynchoecylus, 484.
 fulviventris, *Brachygalba*, 353.
 Grallaria, 421.
 Hyllopezus, 421.
 Myrmotherula, 391.
 fumicolor, *Ochthoeca*, 473.
 fumigata, *Ochthoeca*, 472.
 Tyrannula, 472.
 fumigatus, *Chloronerpes*, 362.
 Cypseloides, 281.
 Eleopicus, 363.
 Ochthodiaeta, 472.
 Tyrannus, 472.
 Veniliornis, 362.
 funereus, *Oryzoborus*, 607.
 furax, *Saltator*, 618.
 furcatus, *Creagrus*, 187.
 Elanoides, 237.
 Larus, 187.
Furnariidae, 424.
Furnarius, 424.
 furvus, *Troglodytes*, 569.
 fusca, *Dendroica*, 594.
 Malacoptila, 356.
 Motacilla, 594.
 fuscater, *Catharus*, 584.
 Myioturds, 584.
 fuscicapilla, *Colonia*, 479.
 Pachysylvia, 588.
 fuscicapillus, *Copurus*, 479
 Hylophilus 588
 Lepidocolaptes, 468.
 Picolaptes, 468.
 fuscicauda, *Ramphotrigon*, 485.
 fuscipennis, *Ceophloeus*, 370.
 Dryocopus, 370.
 Tinamus, 145.
 fuscobrunneus, *Planesticus*, 579.
 Turdus, 579.
 fusco-cærulescens, *Falco*, 239.
 fuscocinerea, *Lathria*, 102, 543.
 fuscocinerea, *Querula*, 543.
 fuscocinereus, *Lipaugus*, 543.
 fusco-rufus, *Ochthodiaeta*, 473.
 fuscus, *Bucco*, 356.
 Cinclodes, map showing distribution of, 114; semi-diagrammatic representation of the breeding-range of, 114.
 gaimardi, *Elænia*, 507.
 Galbalecyrrhynchus, 353, 736.
 Galbula, 351.
Galbulidae, 351.
 galeata, *Gallinula*, 178.
 Galliformes, 151.
 Gallinago, 200.
 Gallinula, 178.
 Gallinules, 174.
 Gampsonyx, 238
 Gannets, 214.
 gardeni, *Nycticorax*, 206.
 gayi, *Lafresnayea*, 307.
 Trochilus, 307.
 Gazetteer, 703.
 Geese, 209.
 Gelochelidon, 185.
 Genera, treatment of, 135.
 Genera of the arid Temperate Zone, distributional analysis of, 105.
 Genera of the humid Temperate Zone, distributional analysis of, 104.
 Genera of the humid Tropical Zone, 46; distributional analysis of, 49; list of, found in western but not eastern Ecuador, 49; list of, found in eastern but not in western Ecuador, 50.
 Genera, of Paramo Zone, distributional analysis of, 113.
 Genera of Subtropical Zone, distributional analysis of, 82.
 genibarbis, *Xenops*, 450.
 geoffroyi, *Schistes*, 322.
 Trochilus, 322.
 Geothlypis, 595.
 Geranospizias, 223.
 gerontodes, *Pionias*, 265.
 Pionus, 265.
 gigantea, *Grallaria*, 415.

- gigantodes, *Turdus*, 582.
 gigas, *Elania*, 506.
 Patagona, 290.
 Semimerula, 582.
 Trochilus, 582.
 Turdus, 290.
 Gill, Geoffrey, Acknowledgments to, 6;
 collections by, 15, 20.
 gilvicollis, *Micrastur*, 222.
 Sparvius, 222.
 Gisella, 250.
 Glaciation, Effects of, 120, 128.
 Glaucidium, 251.
 Glaucis, 284.
 glaucogularis, *Dacnis*, 643.
 glaucus, *Thamnomanes*, 389.
 globicera, *Crax*, 151.
 globulosa, *Crax*, 152.
 Glyphorhynchus, 455.
 Gnatcatchers, 559.
 Gnateaters, 377.
 Gnathospiza, 624.
 godini, *Trochilus*, 311.
 Vestipedes, 311.
 Goldman, Edward A., On Life-Zones in
 Panama, 31.
 goldmani, *Momotus*, distribution of,
 126.
 Goodfellow, W., and Hamilton, C.,
 collections by, 12.
 goodfellowi, *Ciccaba*, 247.
 Thryothorus, 567.
 goodsoni, *Calospiza*, 657.
 Columba, 162.
 Tangara, 657.
 goudoti, *Chamaepetes*, 157.
 Lepidopygia, 291.
 grace-annae, *Icterus*, 56, 698.
 gracilis, *Coccyzus*, 338.
 Lesbia, 321.
 Oceanites, 182.
 Piaya, 339.
 Psilidoprymna, 321.
 Thalassidroma, 182.
 Trochilus, 321.
 Grackles, 690.
 Grallaria, 415.
 Grallaria, 422.
 graminicola, *Siptornis*, 437.
 grammicus, *Celeus*, 367, 736.
 Picus, 367.
 granadense, *Todirostrum*, 488.
 granadensis, *Euscarthmus*, 488.
 Myiozetetes, 510.
 Picumnus, 371.
 granatina, *Chamaepelia*, 166.
 Columbigallina, 166.
 grandior, *Thamnophilus*, 381.
 grandis, *Caprimulgus*, 275.
 Jacamerops, 352.
 Myiozetetes, 738.
 Nyctibius, 275.
 Phrygilus, 627.
 gratiosa, *Mecocerculus*, 476.
 Ochthoeca, 476.
 Graydidascalus, 264.
 grayi, *Eucephala*, 294.
 Hylocharis, 40, 294.
 Trochilus, 294.
 grayii, *Dryocopus*, 368.
 Griscorn, Ludlow, Acknowledgments to,
 6.
 griseicapillus, *Sittasomus*, 461.
 griseiceps, *Glaucidium*, 251.
 Myrmoderus, 87, 93, 406.
 Phyllomyias, 501.
 Tyranniscus, 501.
 griseicollis, *Cyphorhinus*, 572.
 Scytalopus, 373.
 griseigularis, *Elania*, 506.
 griseipectus, *Cranioleuca*, 436.
 Empidonax, 523.
 Empidonax, 523.
 Pheugopedius, 567.
 Thryothorus, 567.
 griseiventris, *Neochelidon*, 556.
 griseobarbata, *Vireosylva*, 587.
 griseogularis, *Phaethornis*, 287.
 griseo-murina, *Schizocaea*, 427.
 Synallaxis, 427.
 griseonucha, *Synallaxis*, 432.
 griseus, *Macrorhamphus*, 194.
 Nyctibius, 274.
 Procellaria, 183.
 Puffinus, 183.
 gronvoldi, *Gelochelidon*, 185.
 Grosbeaks, 605.
 grossus, *Loxia*, 615.

- grossus, *Pitylus*, 615.
 Gruiformes, 202.
 gryphus, *Sarcorhamphus*, 216.
 Vultur, 216.
 guadalupensis, *Saltator*, 618.
 gualaquiza, *Pogonotriccus*, 494.
 gualea, *Momotus*, 272.
 Tityra, 539.
 Guans, 151.
 Guara, 204.
 guatemalæ, *Scops*, 246.
 guatemalensis, *Amaurolimnas*, 177.
 Corethrura, 177.
 guayæ, *Xenops*, 451.
 guayaquilensis, *Ara*, 254.
 Campophilus, 368.
 Lathria, 544.
 Phlæoceastes, 368.
 Picus, 368.
 guerilla, *Micrastur*, 222.
 guianensis, *Craspedoprion*, 483.
 Myiozetetes, 510.
 Odontophorus, 159.
 guimeti, *Hemithraupis*, 682.
 Klais, 326.
 Motacilla, 682.
 Nemosia, 682.
 Trochilus, 326.
 guirina, *Hemithraupis*, 683.
 Nemosia, 683.
 gujanensis, *Cyclarhis*, 590.
 Tanagra, 590.
 gularis, *Aphantochroa*, 304.
 Paroaria, 629.
 Placophorus, 304.
 Synallaxis, 434.
 Tanagra, 629.
 Gulls, 185.
 guttata, *Margarornis*, 454.
 Ortalis, 155.
 guttatoides, *Nasica*, 462.
 Xiphorhynchus, 462.
 guttatus, *Chrysophilus*, 361, 736.
 Picus, 361.
 Tinamus, 146.
 Troglodytes, 572.
 guttuligera, *Premnornis*, 454.
 Thripophaga, 454.
 gutturalis, *Spermophila*, 611.
 gutturata, *Cranioleuca*, 435.
 gutturatus, *Anabates*, 435.
 gutturata, *Chiromachæris*, 535.
 Gymnoderus, 553.
 Gymnomystax, 698.
 Gymnopathys, 402.
 Gymnostinops, 691.
 gyroloides, *Calliste*, 659.
 Calospiza, 659.
 hæmatogaster, *Campephilus*, 369.
 Cniparchus, 369.
 Dryocopus, 369.
 Picus, 369.
 Hæmatopus, 190.
 hæmatopygius, *Aulacorhamphus*, 351.
 hæmatostigma, *Dendrobates*, 365.
 Mesopicus, 365.
 Veniliornis, 365.
 haliaëtus, *Pandion*, 243.
 Halocyptena, 184.
 hamiltoni, *Helianthea*, 305.
 Haplocercus, 492.
 Hapalopsittaca, 266.
 haplopteryx, *Cænotriccus*, 490.
 Harpagus, 238.
 Harpiprion, 204.
 Harpyhaliaëtus, 235.
 harrisi, *Buteo*, 223.
 Gisella, 250.
 Parabuteo, 223.
 Hartert, Dr. Ernst, Acknowledgments
 to, 6.
 harterti, *Acestrura*, 326.
 Chætocercus, 326.
 Crypturus, 148.
 Picumnus, 371.
 Pittasoma, 415.
 Polyxemus, 326.
 hartlaubi, *Eubucco*, 343.
 hauxwelli, *Anurolimnas*, 177.
 Formicivora, 392.
 Henicorhina, 572.
 Myrmotherula, 392.
 Hawks, 219.
 hederaceus, *Mionectes*, 497.
 Heilner, Van Campen, Assistance by, 18.
 heinei, *Tangara*, 666.
 Heleodytes, 563.

- heliactin, *Pharomachrus*, 329.
Heliangelus, 315.
Helianthea, 305.
helias, *Eurypyga*, 203.
Heliochera, map showing distribution of, 115.
heliodori, *Acestrura*, 325.
 Chætocercus, 325.
 Ornismya, 325.
Heliodoxa, 304
Heliornis, 180.
Heliornithidæ, 180.
Heliotheryx, 323.
 Hellmayr, Dr. C. E., Acknowledgments to, 6.
hellmayri, *Dysithamnus*, 383.
 Myiozetetes, 509.
 Thamnophilus, 383.
helvetica, *Squatarola*, 192.
Hemidacnis, 643.
hemileuca, *Hypocnemis*, 408.
 Myrmochanes, 408, 736.
hemileucurus, *Phlogophilus*, 314.
hemimelæna, *Myrmeciza*, 406.
hemimelænus, *Myrmoderus*, 406.
Hemispingus, 686.
Hemithraupis, 682.
Henicorhina, 572.
Hérons, 205.
Herpsilochmus, 395.
herrani, *Chalcostigma*, 318.
 Rhamphomicon, 318.
 Trochilus, 318.
hesperus, *Diphogena*, 307.
Heterocercus, 538.
Heteroscelus, 197.
Heterospingus, 679.
Heterospizias, 225.
heterura, *Eutoxeres*, 289.
heterurus, *Eutoxeres*, 288.
 Pyrocephalus, 521.
 Xenops, 450.
 Hettner, Dr. Alfred, on Glaciation, 120.
hilaris, *Henicorhina*, 573.
Himantopus, 194.
himantopus, *Micropalama*, 195.
 Tringa, 195.
hirundinacea, *Melanerpes*, 362.
Hirundinidæ, 554.
Hirundo, 555.
hirundo, *Sterna*, 186.
hispidus, *Phœthornis*, 286.
 Trochilus, 286.
 History of Ecuadorean Ornithology, 7.
Hoatzin, 174.
hoazin, *Opiſthocomus*, 174, 736.
 Phasianus, 174.
holerythrur, *Lipaugus*, 546.
holochlora, *Chloropipo*, 533.
holosericeus, *Amblycercus*, 695.
holostictus, *Automolus*, 441.
 Thripadectes, 441.
homochroa, *Idiospiza*, 613.
homochrous, *Hadrostomus*, 540.
 Pachyrhamphus, 540.
 Platypsaris, 540.
 Honey-Creepers, 637.
hopkei, *Carpodectes*, 552.
Hoploxypterus, 191.
hornbyi, *Oceanodroma*, 183.
 Thalassidroma, 183.
hudsonicus, *Numenius*, 194.
hueti, *Psittacus*, 267.
 Urochroma, 267.
huhula, *Ciccaba*, 249.
 Strix, 249.
 Humboldt Current, Influence on Climate of, 29, 30.
 Humboldt Current, Influence of on distribution of Brown Pelicans, 128.
 Humboldt's law of altitudinal distribution, 127.
humboldtii, *Hylocharis*, 294.
 Pteroglossus, 350.
 Trochilus, 294.
humeralis, *Pitylus*, 616.
 Saltator, 616.
 Terenura, 397.
humilis, *Phonasca*, 652.
 Tanagra, 652.
 Hummingbirds, 281; evolution in, 131.
Hydranassa, 206.
Hydrobates, 182.
Hydropsalis, 277.
Hylactidæ, 371.
Hylocharis, 294.
Hylocichla, 584.
Hyloctistes, 443.

- Hylopezus, 421.
 Hylophylax, 409.
 hyperboreus, Phalaropus, 200.
 hyperrhynchus, Bucco, 354.
 Notharchus, 354.
 hypochlora, Thalurania, 297.
 Hypocnemis, 407.
 hypoglaucus, Andigena, 348.
 hypoleuca, Grallaria, 418.
 Zenaida, 164.
 hypoleucus, Myrmochanes, 408.
 hypopyrrha, Ampelis, 545.
 Aulia, 545.
 Laniocera, 545.
 hypospodius, Buteo, 226.
 hyposticta, Aphantochroa, 290.
 Synallaxis, 435.
 hypostictus, Campylorhynchus, 563.
 Heleodytes, 563.
 Taphrospilus, 290.
 hypoxantha, Euphonia, 652.
 Hypocnemis, 407.
 Tanagra, 652.
 Hypoxanthus, 359.

 Ibididæ, 203.
 Ibises, 203.
 Ibycter, 220.
 icterica, Chrysomitris, 621.
 Icteridæ, 690.
 icterocephala, Calliste, 658.
 Tangara, 658.
 icteronotus, Cacicus, 693.
 Ramphocelus, 675.
 icterotis, Conurus, 259.
 Gnathosittaca, 259.
 Ognorhynchus, 259.
 Icterus, 698.
 Idiospiza, 612.
 ignicapillus, Iridornis, 666.
 Iridosornis, 666.
 ignipalliatu, Phœnicopterus, 209.
 ignobilis, Automolus, 441.
 Thripadectes, 441.
 Turdus, 581.
 ignotus, Xiphocolaptes, 464.
 immaculata, Phæoprogne, 555.
 Thamnophilus, 404.
 immaculatus, Myrmelastes, 404.

 immaculatus, Saltator, 618.
 imperatrix, Eugenia, 305.
 implacens, Elænia, 507.
 incana, Scolopax, 197.
 incanus, Heteroscelus, 197.
 incerta, Sporophila, 608.
 inda, Alcedo, 269.
 Ceryle, 269.
 Chloroceryle, 269.
 indigotica, Diglossa, 640.
 inermis, Ornithion, 502.
 inexpectatus, Tinamus, 145.
 infuscatum, Glaucidium, 251.
 infuscatus, Acropternis, 374.
 Anabates, 445.
 Automolus, 445.
 ingens, Otus, 246.
 Scops, 246.
 inornata, Amazona, 262.
 Catamenia, 612.
 Chrysotis, 262.
 Henicorhina, 572.
 Symphemia, 195.
 inornatus, Buarremon, 635; map showing distribution of, 91.
 Catoptrophorus, 195.
 inquisitor, Tityra, 540.
 insignis, Euphonia, 649.
 Tanagra, 649.
 Xiphorhynchus, 463.
 insolens, Agriornis, 471.
 insularis, Platyticus, 482.
 interior, Manacus, 535.
 Myrmopagis, 393.
 Myrmotherula, 393.
 intermedia, Certhiola, 637.
 Chalybura, 299.
 Cæreba, 637.
 Diglossa, 637.
 Speotyto, 251.
 Tanagra, 650.
 intermedianus, Pseudocolaptes, 439.
 intermedius, Cymbilaimus, 379.
 Cymbilanius, 379.
 Thamnistes, 385.
 interpres, Arenaria, 190.
 interstes, Climacocercus, 222.
 Micrastur, 222.
 Iodopleura, 552.

- iolata*, Colibri, 300.
Petasophora, 300.
Ionolaima, 304.
Ionornis, 179.
iridescens, Anthracothorax, 300.
Lampornis, 300.
iridina, Tanagra, 653.
Tanagrella, 653.
Iridophanes, 647.
Iridoprocne, 554.
Iridosornis, 666.
iris, Diphogena, 306.
irrorata, Diomedea, 184.
isabellæ, Iodopleura, 552.
isadorei, Pipra, 531.
isidori, Falco, 236.
Lophotriorchis, 236.
Oroaëtus, 236.
isthmicus, Saltator, 618.

Jacamars 351.
Jacamerops, 85, 353, 736.
Jacana, 201.
Jacanas, 201.
Jacaniidæ, 201
jacapa, Ramphocelus, 675.
jacarini, Volatinia, 614
jacuacu, Penelope, 154
jacupeba, Penelope, 154.
jamaicensis, Nyctibius, 274.
jamersoni, Trochilus, 304.
Jameson, William, birds sent by, from
Quito, 8; scientific pursuits of, 8.
jassoni, Gallinago, 8, 200.
Heliodoxa, 304.
Oreotrochilus, 302.
Xylocota, 200.
Jardine, Sir William, on birds from
Quito, 8.
jardinei, Panoplitcs, 310.
jardini Boissonneaua, 310.
Glaucid um, 252.
Spodiornis, 628.
Phalænopsis, 252.
jardini, Trochilus, 310.
Jays, 700.
jelskii, Ochthoeca, 474.
Jijon, J. y Caamaño, Acknowledgments
to, 5.

johannæ, Calliste, 656.
Doryfera, 281.
Tangara, 656.
Trochilus, 281.
johnsoni Pseudocolaptes, 439.
josephæ, Vireo, 588.
Vireosylva, 588.
jota, Cathartes, 218.
Vulcur, 218.
jucunda, Amazilia, 292.
Eranna, 292.
Euchlornis, 550.
Pipreola, 550.
jugularis, Brotogeris, 262.
Conurus, 262.
Micrastur 222
Psittacus, 262.
juliæ, Damophila, 295.
julius, Nothocercus, 146.
Tinamus, 146.
jumana, Celeus, 366.
juninensis, Colymbus, 180.
Podiceps, 180.
Speotyto, 250.

kelsalli, Hydrobates, 182.
Thalassidroma, 182.
Kingfishers, 268.
Klais, 326.

labradorides, Calliste, 663.
Calospiza, 663.
Tanagra, 663.
Tangara, 663.
lachrymosus, Dendroornis, 463.
Xiphorhynchus, 463.
lacrymiger, Picolaptes, 466.
Lafresnaye, 307.
lafresnaye, Ca amenia, 613.
Dendrocincla, 458.
Diglossa, 638.
Picumnus, 371.
Uncirostrum, 638.
laminirostris, Andigena, 347.
Lamprosar, 738.
lamprotes, Tangara, 665.
lanceolata, Bucco, 357.
Micromonac'a, 56, 357.
landsbergi, Coccyzus, 336.

- langsdorffi, Gouldia, 327.
 Popelairia, 327.
 Trochilus, 327.
 Laniisoma, 538.
 Lanio, 679.
 Laniocera, 545.
 Laridæ, 185.
 Lariformes, 185.
 Larus, 188.
 lateralis, Andigena, 348.
 Lathria, 543.
 laticlavus, Heliangelus, 315.
 latifrons, Tinamus, 145.
 latinuchus, Atlapetes, 631.
 Buarremon, 631.
 latirostris, Aulanax, 522.
 Cassicus, 690.
 Euscarthmus, 487.
 Ocyalus, 690.
 Sayornis, 522.
 latissimus, Buteo, 230.
 latrans, Scytalopus, 372.
 latreillii, Attagis, 8, 189.
 lavinia, Calliste, 658.
 Tangara, 658.
 lazulus, Campylopterus, 289.
 leadbeateri, Heliodoxa, 304.
 Trochilus, 304.
 Legatus, 509.
 lenzi, Pœcilotriccus, 488.
 Todiostrostrum, 488.
 Lepidocolaptes, 67, 466.
 lepidonota, Hypocnemis, 407.
 Leptasthenura, 428.
 Leptopogon, 499.
 Leptosittaca, 259.
 Leptotila, 168.
 lessoni, Momotus, map showing distribution of group of, 126.
 Ochthœca, 475.
 leucaspis, Myrmeciza, 402.
 Pithys, 402.
 leuce, Egretta, 205.
 leucochlamys, Manacus, 535.
 leucocilla, Pipra, 531.
 leucocrissus, Bucco, 354.
 Notharcus, 354.
 leucogastra, Pachysylvia, 588.
 leucogenys, Cichlopsis, 577.
 leucolæmus, Chloronerpes, 360.
 Picus, 360.
 Leucolepis, 573.
 leuconota, Colonia, 480.
 leuconotus, Cinclus, 576.
 Copurus, 479.
 leucophæa, Amazilia, 292.
 leucophaius, Legatus, 509.
 Platyrrhynchus, 509.
 leucophrys, Henicorhina, 572.
 Hylophilus, 587.
 Myrmoborus, 408.
 Pithys, 408.
 Trogodytes, 572.
 Vireosylva, 587.
 leucophthalmus, Conurus, 258.
 leucopsis, Atlapetes, 631.
 leucopogon, Thryophilus, 565.
 leucops, Merula, 579.
 Turdus, 579.
 Leucopternis, 234.
 leucopterus, Arremon, 632.
 Atlapetes, 632.
 Buarremon, 632.
 Carenochrous, 632.
 leucopygus, Rosthramus, 237.
 leucorhamphus, Archiplanus, 694.
 Cacicus, 694.
 Cassculus, 694.
 Xanthornus, 694.
 leucorhoa, Rupornis, 232.
 leucorrhous, Falco, 232.
 leucospodia, Elænia, 508.
 leucosticta, Henicorhina, 572.
 leucostictus, Cyphorhinus, 572.
 Dysithamnus, 387.
 leucostigma, Heterocnemis, 405.
 leucotis, Galbalcyrrhynchus, 353, 736.
 Calliste, 662.
 Malaconotus, 590.
 Vireolanius, 590.
 leucura, Urochroa, 303.
 leveriana, Cissopis, 690.
 levis, Sittasomus, 461.
 lictor, Lanius, 512.
 Pitangus, 512, 736.
 Life Zones, Altitudes of, in Colombia, 31.
 Life Zones, Altitudinal, development of, 124; evolution of birds of, 129.

- lilacina, Amazona, 56, 264.
 Chrysotis, 264.
 Limnodromus, 194.
 Limosa, 194.
 Limpkins, 202.
 lineata, Anabates, 449.
 Ardea, 208.
 Tigrisoma, 208.
 lineatum, Tigrisoma, 208.
 lineatus, Ceophlceus, 369.
 Cymbilanius, 379.
 Picus, 369.
 lineifrons, Apocryptornis, 424.
 Liosceles, 374.
 Lipaugus, 545.
 litæ, Chloronerpes, 360.
 Chloropipo, 533.
 Myiobius, 519.
 Myiophobus, 519.
 littoralis, Elainea, 478.
 Ochthornis, 478.
 Xenops, 450.
 livida, Claravis, 167.
 lobata, Tringa, 200.
 lobatus, Lobipes, 200.
 Lobipes, 200.
 Localities, Sequence of, when cited, 143.
 Lochmias, 426.
 loculator, Tantalus, 204.
 longicauda, Bartramia, 198.
 Dendrocincla, 461.
 Deconychura, 461.
 Tringa, 198.
 longicaudatus, Caprimulgus, 271.
 Mimus, 576.
 Nyctibius, 275.
 longicaudus, Thamnophilus, 381.
 longipennis, Chlorophonia, 648.
 Euphonia, 648.
 longipes, Pheugopedius, 567.
 Thryothorus, 567.
 longirostris, Dendrocopus, 468.
 Nasica, 468.
 Rallus, 174.
 Lophostrix, 246.
 Lophotriccus, 490.
 lorata, Sterna, 187.
 loricatus, Celeus, 366.
 Meiglyptes, 366.
 Lowe, Dr. Percy R., Acknowledgments to, 6.
 loyca, Trupialis, 698.
 lubomirskii, Euchlorornis, 550.
 Pipeola, 550.
 luciani, Eriocnemis, 310.
 Trochilus, 310.
 Vestipedes, 310.
 lucida, Psittacula, 260.
 luctuosa, Spermorphila, 612.
 Sporophila, 612.
 luctuosus, Tachyphonus, 680.
 ludovicæ, Dorifera, 282.
 ludoviciana, Habia, 606.
 Loxia, 606.
 Zamelodia, 606.
 ludovicianus, Hedymeles, 606.
 lugens, Eriopus, 312.
 Vestipedes, 312.
 lunigera, Calliste, 664.
 Calospiza, 664.
 Tangara, 664.
 lunulata, Pœcilothraupis, 667.
 Tanagra, 667.
 Lurocalis, 276.
 luteiventris, Elaenia, 511.
 Lophotriccus, 491.
 Myiodynastes, 513.
 Myiozetetes, 511.
 Sycalis, 624.
 luteola, Certhiola, 637.
 Sycalis, 624.
 luteoviridis, Basileuterus, 599.
 Myiothlypis, 599.
 lutetiæ, Helianthea, 305.
 Trochilus, 305.
 lutleyi, Tangara, 663.
 lyra, Hydropsalis, 276.
 Macropsalis, 276.
 Uropsalis, 276.
 Lysurus, 631.
 macao, Ara, 254, 736.
 Psittacus, 254.
 macavuanna, Ara, 256.
 Macaws, 253.
 macconnelli, Crypturus, 147.
 Machæropterus, 532.

- MacKay, Malcolm, Acknowledgments to, 5.
 macleannani, Phlegopsis, 410.
 macrodactylus, Argicus, 356.
 Bucco, 356.
 Cyphos, 356.
 Macropsalis, 276.
 macrorhyncha, Dendrocincla, 456.
 macrorhynchus, Bucco, 354.
 macroura, Sterna, 187.
 macrourus, Troglodytes, 571.
 macrurus, Trogon, 335.
 macularia, Actitis, 197.
 Tringa, 197.
 macularius, Tringoides, 197.
 maculata, Adelomyia, 314.
 Heteropygia, 199.
 Malacocichla, 585.
 Muscicapa, 512.
 Pisobia, 199.
 Tringa, 199.
 Zenaida, 165.
 maculatus, Catharus, 585.
 Myiodynastes, 512.
 maculicaudis, Cercomacra, 400.
 maculifer, Myrmeciza, 403.
 Myrmelastes, 403.
 maculipennis, Pygiptila, 385.
 Thamnophilus, 385.
 maculirostris, Muscisaxicola, 481.
 Turdus, 580.
 maculosa, Cercomacra, 400.
 maculosus, Circus, 221.
 Nyctibius, 273.
 magellanicus, Scytalopus, 372.
 magnirostris, Asturina, 231.
 Capsiempis, 500.
 Erionotus, 381.
 Falco, 231.
 Phaëtusa, 185.
 Rupornis, 231.
 Sterna, 185.
 magnus, Gampsonyx, 238.
 Saltator, 616.
 major, Chloronerpes, 364.
 Crotophaga, 340.
 Eurypyga, 203.
 Veniliornis, 364.
 Malacoptila, 356, 736.
 malherbii, Chloronerpes, 264.
 Manacus, 535.
 manacus, Chiromachæris, 535.
 Manacus, 535.
 Manakins, 530.
 mango, Lampornis, 300.
 manilata, Ara, 256.
 Psittacus, 256.
 Man-O'-War Birds, 215.
 maranonicus, Melanopareia, 377.
 Turdus, 584.
 marcomi, Dendroeca, 593.
 Margarornis, 453.
 marginata, Heterocnemis, 575.
 marginatus, Chlorospingus, 685.
 Microcerculus, 575.
 Pachyrhamphus, 543.
 Todus, 543.
 Marila, 211.
 markhami, Cymochorea, 182.
 Oceanodroma, 182.
 marmoratum, Tigrisoma, 208.
 marmoratus, Odontophorus, 159.
 martii, Baryphthengus, 270.
 Momotus, 270.
 Prionites, 270.
 Urospatha, 270.
 martinica, Fulica, 179.
 Ionornis, 179.
 Martins, 554.
 Masius, 534.
 mathewsii, Panoplitus, 310.
 Trochilus, 310.
 matthewsi, Boissonneaua, 310.
 mauri, Ereunetes, 198.
 mayana, Cotinga, 551.
 maynana, Ampelis, 551.
 Cotinga, 551.
 maxima, Sterna, 186.
 maximus, Manacus, 535.
 Saltator, 616.
 Tanagra, 616.
 Measurements, how made, 144.
 Mecocerculus, 477.
 media, Synallaxis, 430.
 Megaceryle, 268.
 megalopterus, Milvago, 220.
 Megapicos, 368.
 Megaquiscalus, 700.

- Megarhynchus, 514.
 mehleri, Piaya, 337.
 Meiglyptes, 366.
 melacoryphus, Coccyzus, 336.
 melæna, Formicivora, 392.
 Myrmotherula, 392.
 melananthera, Spathura, 313.
 Steganura, 313.
 Trochilus, 313.
 melanantherus, Ocreatus, 313.
 melancholicus, Tyrannus, 530.
 melanicterus, Gymnomystax, 698.
 melanocephala, Caica, 267.
 melanoceps, Myrmeciza, 403.
 Thamnophilus, 403.
 melanogaster, Cuculus, 338.
 Piaya, 338.
 melanogenia, Galbula, 351.
 melanogenys, Adelomyia, 314.
 Trochilus, 314.
 melanolæma, Pipreola, 549.
 melanoleucos, Phlæoceastes, 367.
 Picus, 367.
 melanoleucus, Buteo, 226.
 Campophilus, 367.
 Geranaëtus, 226.
 Micrastur, 221.
 Totanus, 196.
 melanonota, Noctua, 245.
 Pipraïdea, 737.
 Pulsatrix, 245.
 melanonotus, Odontophorus, 160.
 Melanopareia, 374, 737.
 melanopezus, Anabates, 444.
 Automolus, 444.
 melanops, Falco, 235.
 Leucopternis, 235.
 melanoptera, Metriopelia, 168.
 Peristera, 168.
 Tanagra, 673.
 Thraupis, 673.
 melanopterus, Trogon, 334.
 melanorhynchus, Anabates, 441.
 Chlorostilbon, 296.
 Thripadectes, 441.
 melanosticta, Anoplops, 402.
 Gymnopathys, 402.
 Hypocnemis, 408.
 Pithys, 402.
 melanotis, Chlorospingus, 688.
 Hemispingus, 688.
 Tangara, 663.
 melanura, Euphonia, 652.
 Tanagra, 652.
 Taraba, 380.
 melanurus, Curucujus, 335.
 Thamnophilus, 380.
 Trogon, 335.
 mellivora, Florisuga, 290.
 meloda, Columba, 165.
 Melopelia, 165.
 Melopelia, 165; map of distribution of, 66.
 menetriesi, Myrmotherula, 393.
 menstruus, Pionus, 264.
 Psittacus, 264.
 mentalis, Anabazenops, 449.
 Dysithamnus, 386.
 Rhodospingus, 629.
 Xenotistes, 449.
 mercenaria, Amazona, 263.
 Chrysotis, 263.
 mercenarius, Psittacus, 263.
 Merganetta, 212.
 meridæ, Hypoxanthus, 359.
 meridionalis, Buteogallus, 225.
 Cathartes, 217.
 Falco, 225.
 Heterospizias, 225.
 mesochrysa, Euphonia, 653.
 Tanagra, 653.
 mesomelas, 699.
 mesorhynchus, Ceophlæus, 370.
 mesura, Piaya, 337.
 mesurus, Curucujus, 335.
 Pyrrhococcyx, 337.
 Troctes, 335.
 Metallura, 317.
 Metopothrix, 438.
 Metriopelia, 168.
 mexicana, Certhiola, 637.
 Cereba, 637.
 mexicanus, Charadrius, 194.
 Gymnomystax, 698.
 Himantopus, 194.
 Oriolus, 698.
 micraster, Heliangelus, 316.
 Micrastur, 221.

- Microbates, 561.
 Microcerculus, 574.
 Micromonacha, 357.
 Micropalama, 195.
 Micropodidae, 279.
 micropterus, Agathopus, 373.
 Seytalopus, 373.
 Microrhopias, 396.
 microrhyncha, Coereba, 646.
 Cyanerpes, 646.
 Ornismya, 319.
 microrhynchum, Ramphomicron, 319.
 microsoma, Halocyptena, 184.
 microstephanus, Momotus, 272.
 Microtriccus, 503.
 micrura, Acestrura, 324.
 Myrmia, 324.
 micurus, Calothorax, 324.
 Migrants, from North America, Remarks
 on and list of, 139-143.
 Migrants, List of North American,
 found in Ecuador, 141.
 mikettæ, Vireolanius, 56, 590.
 militaris, Ara, 254.
 Psittacus, 254.
 Miller, Waldron DeWitt, acknowledg-
 ments to, 6; proofs read by, 7.
 Mimidae, 576.
 Mimus, 576.
 Mindo, Bird-skins from, 11.
 mindoensis, Cyclarhis, 592.
 Grallaricula, 423.
 Lathria, 545.
 Pionus, 265.
 minimus, Neochelidon, 556.
 minor, Catamenia, 612.
 Cissopis, 690.
 Cnipodectes, 515.
 Grallaria, 421.
 Hylophilus, 590.
 Idiospiza, 612.
 Megarhynchus, 513.
 Myiodynastes, 513.
 Myrmothera, 421.
 Odontorchilus, 564.
 Odontorhynchus, 564.
 Pachysylvia, 590.
 Pipra, 531.
 Platypsaris, 540.
 minor, Querula, 540.
 minuta, Euphonia, 652.
 Loxia, 609.
 Piaya, 338.
 Spermophila, 609.
 Sporophila, 609.
 minutilla, Limonites, 199.
 Pisobia, 199.
 Tringa, 199.
 Mionectes, 496.
 mitchelli, Calliphlox, 325.
 Trochilus, 325.
 Mitrephanes, 522.
 Mitrospingus, 682.
 Mitu, 47, 152.
 Mniotilta, 592.
 Mniotiltidae, 592.
 Mockingbirds, 576.
 mocoa, Cyanolesbia, 319.
 Cynanthus, 319.
 Trochilus, 319.
 modestus, Crypturus, 149.
 Larus, 188.
 modulator, Cyphorhinus, 573.
 mœsta, Synallaxis, 431.
 mollissima, Chamæza, 414.
 Molothrus, 697.
 momota, Momotus, map of distribution
 of, 55.
 Momotidae, 270.
 Momotus, 272.
 Monasa, 358, 736.
 mondetoura, Claravis, 168.
 Peristera, 168.
 montagnii, Penelope, 152.
 Ortalida, 152.
 montana, Columba, 171.
 Geotrygon, 171.
 Oreopeleia, 171.
 montanus, Anabates, 448.
 Xenicopsoides, 448.
 monticola, Grallaria, 418.
 moorei, Phœthornis, 285.
 morinella, Arenaria, 190.
 Tringa, 190.
 moschata, Anas, 209.
 Cairina, 209, 736.
 mosquera, Eriocnemis, 311.
 Trochilus, 311.

- mosquera, *Vestipedes*, 311.
Motacillidæ, 604.
Motmots, 270.
mul santi, *Acestrura*, 325.
 Calothorax, 325.
 Chætocercus, 325.
 Ornismya, 325.
multiguttata, *Dendroornis*, 464.
murina, *Atticora*, 555.
 Orochelidon, 555.
 Petrochelidon, 555.
 Murphy, Robert Cushman, Acknowledgments to, 6; collections by, 18, 21; on rainfall, 27; reference to his Bird Islands of Peru, 29.
Muscigralla, 481.
Muscisaxicola, 480.
Muscivora, 530.
musculus, *Troglodytes*, 569.
 Mutation, 132; in *Buarremon*, map illustrating, 91.
Myadestes, 578.
Mycteria, 204.
Myiarchus, 527.
Myiobius, 515.
Myioborus, 596.
Myiochanes, 524.
Myiodynastes, 512.
Myiophobus, 518.
Myiosympotes, 493.
Myiothlypis, 599.
Myiotriccus, 518.
Myiozetetes, 509, 738.
Myornis, 373.
Myospiza, 625.
myotherina, *Hypocnemis*, 408.
myotherinus, *Myrmoborus*, 408.
 Thamnophilus, 408.
Myrmeciza, 403.
Myrmia, 324.
Myrmoborus, 408.
Myrmochanes, 408.
Myrmoderus, 406.
Myrmornis, 410.
Myrmotherula, 389.
Myrtis, 324.
mystacalis, *Cyanocorax*, 700.
 Pheugopedius, 565.
 Pica, 700.
mystacalis, *Thryothorus*, 565.
mystaceus, *Platytriccus*, 482.
nævia, *Ardea*, 206.
nævioides, *Conopophaga*, 409.
 Hylophylax, 409.
 Hypocnemis, 409.
nævius, *Diplopterus*, 340.
 Nycticorax, 206.
 Thamnophilus, 381.
nana, *Grallaria*, 423.
 Grallaricula, 423.
nanodes, *Speotyto*, 250.
napensis, *Campylorhamphus*, 469.
 Cercomacra, 397.
 Chiroxiphia, 534.
 Dysithamnus, 387.
 Guyornis, 284.
 Psophia, 203.
 Tachyphonus, 681.
 Xiphorhynchus, 464.
 Napo Region, Bird-skins from, 9.
naseus, *Neorhynchus*, 607.
Nasica, 468.
naso, *Carnifex*, 221.
 Micrastur, 221.
nationi, *Fuligula*, 211.
 Nyroca, 211.
 Native collectors, activity of, 136.
nattereri, *Penelope*, 156.
nattererii, *Ampelis*, 551.
 Cotinga, 551.
 Natural selection, possible influence of, 132.
Naumburg, *Elsie M. B.*, assistance by, 7.
neboux, *Sula*, 214.
Neochelidon, 556.
Neocrex, 178.
Neotantes, 385.
Neomorphus, 339.
Neopipo, 536.
Neorhynchus, 607.
Nettion, 210.
niger, *Neotantes*, 385.
 Scytalopus, 372.
 Xenops, 385.
Nightjars, 275.
nigra, *Rhynchops*, 187.
nigrescens, *Bubo*, 244.

- nigrescens*, *Caprimulgus*, 279.
 Myiochanes, 526.
 Nyctipolus, 279.
nigricans, *Cercomacra*, 400.
 Limnopardalus, 175.
 Pardirallus, 175.
 Rallus, 175.
 Sayornis, 522.
nigricapillus, *Basileuterus*, 599.
 Formicarius, 412.
 Nothocercus, 147.
 Thryophilus, 565.
 Thryothorus, 565.
 Tyranniscus, 504.
 Tyrannulus, 504.
nigricauda, *Automolus*, 445.
 Myrmeciza, 405.
nigriceps, *Crypturus*, 149.
 Eleopicus, 364.
 Myiarchus, 528.
 Pitylus, 615.
 Tityra, 539.
 Todirostrum, 487.
nigricincta, *Calliste*, 661.
nigricinctus, *Phœthornis*, 288.
 Pygmornis, 288.
nigricollis, *Anthracothonax*, 300.
 Euphonia, 649.
 Himantopus, 194.
 Phenicercus, 546.
 Trochilus, 300.
nigricrissa, *Piaya*, 337.
 Pyrrhococyx, 337.
nigricristatus, *Basileuterus*, 599.
 Myiothlypis, 599.
nigrifrons, *Buarremon*, 636.
 Bucco, 359.
 Chlorospingus, 687.
 Formicarius, 410.
 Hemispingus, 687.
 Monasa, 359, 736.
nigrirostris, *Andigena*, 348; range of,
 with map, 85.
 Cyclarhis, 591.
nigrivertex, *Basileuterus*, 599.
nigrivestis, *Eriocnemis*, 312.
 Trochilus, 312.
nigriviridis, *Calliste*, 660.
nigrocincta, *Aglaia*, 661.
nigrocincta, *Tangara*, 661.
nigrocristatus, *Myiothlypis*, 599.
 Trichas, 599.
nigrofasciata, *Thalurania*, 298.
 Trochilus, 298.
nigrogularis, *Ramphocelus*, 675.
 Tanagra, 675.
nigrolineata, *Ciccaba*, 249.
nigromaculata, *Myothera*, 409.
 Phlegopsis, 409.
nigromaculatus, *Formicarius*, 409.
nigroplumbeus, *Accipiter*, 224.
nigroviridis, *Tangara*, 550.
nilotica, *Gelochelidon*, 185.
nitida, *Asturina*, 231.
nitidior, *Basileuterus*, 600.
nitidissima, *Chlorochrysa*, 654.
nitidus, *Falco*, 231.
niveigularis, *Tyrannus*, 529.
nobilis, *Chamaeza*, 414.
 Gallinago, 200.
 Myiodynastes, 512.
 Tanagra, 671.
Nomonyx, 212.
Nonnula, 358.
notabilis, *Compsocoma*, 671.
 Seiurus, 595.
notatus, *Chlorestes*, 295.
 Trochilus, 295.
Notharchus, 354.
Nothocercus, 146.
Nothocercus, 47, 152.
Nothoprocta, 150.
noveboracensis, *Motacilla*, 595.
 Seiurus, 595.
nuchalis, *Grallaria*, 417.
nudigenis, *Turdus*, 580.
Numenius, 194.
Nuttalornis, 524.
Nyctanassa, 207.
Nyctibiidae, 273.
Nyctibius, 273.
Nycticorax, 206.
Nyctidromus, 277.
Nyctiphrynus, 278.
Nyctipolus, 279.
Nystactes, 356.
Nystalus, 356.

- oberholseri, *Pseudocolaptes*, 438.
 obidensis, *Thripophaga*, 440.
 obscura, *Spermophila*, 612.
 Sporophila, 612.
 Synallaxis, 431.
 obscurata, *Lochmias*, 426.
 obscurior, *Sclerurus*, 452.
 obscurus, *Campylopterus*, 289.
 obsoleta, *Grallaria*, 417.
 obsoletus, *Crypturus*, 148.
 Turdus, 581.
 occidentalis, *Andigena*, Range of, 85.
 Arremon, 630.
 Chaetura, 281.
 Coccyzus, 337.
 Conopophaga, 377.
 Crypturus, 150.
 Drymophila, 396.
 Euchlornis, 549.
 Leptoptila, 169.
 Leucopternis, 234.
 Microcerculus, 575.
 Molothrus, 697.
 Muscivora, 515.
 Onychorhynchus, 515.
 Oryzoborus, 607.
 Pelecanus, 215.
 Procnias, 648.
 Tersina, 648.
 Urubitinga, 233.
 Oceanites, 182.
 Oceanodroma, 182.
 ocellata, *Dendroornis*, 463.
 Spermophila, 611.
 ocellatus, *Caprimulgus*, 278.
 Nyctiphrynus, 278.
 ochraceicristata, *Basileuterus*, 602.
 ochraceiventris, *Leptotila*, 56, 170.
 ochraceus, *Chlorospingus*, 688.
 Hemisphysalis, 688.
 ochrocephala, *Amazona*, 263, 736.
 Chrysotis, 263.
 ochrocephalus, *Psittacus*, 263.
 ochrogaster, *Philydor*, 448.
 Ochthodiatra, 472.
 Ochthoeca, 473.
 Ochthornis, 478.
 O'Connell, Geoffrey, Acknowledgments
 to, 6, 20, 21.
 Ocreatus, 313.
 ocularis, *Euscarthmus*, 488.
 Phrygilus, 628.
 Ocyalus, 690.
 Odontophoridae, 159.
 Odontophorus, 159.
 Odontorchilus, 564.
 Odontoriorchis, 238.
 Oedinemidae, 202.
 oenanthoides, *Ochthoeca*, 473.
 cenone, *Chrysura*, 295.
 Ornismya, 295.
 cenops, *Creciscus*, 178.
 Porzana, 178.
 Ognorhynchus, 259.
 Oil-bird, 267.
 Olalla and Sons, collections by, 17, 21.
 oleagineus, *Chlorospingus*, 688.
 Mionectes, 498.
 oleaginus, *Mionectes*, 498.
 olivacea, *Chamaeza*, 413.
 Chlorothraupis, 678.
 Dendrocincla, 457.
 Hylophilus, 589.
 Muscicapa, 586.
 Pachysylvia, 589.
 Spermophila, 611.
 Sporophila, 611.
 Urospatha, 270.
 Vireosylva, 586.
 olivaceum, *Campytopoma*, 503.
 olivaceus, *Craspedoprion*, 483.
 Dysithamnus, 386.
 Mionectes, 497.
 Orthogonys, 678.
 Spinus, 622.
 olivascens, *Cinnicerthia*, 562.
 Saltator, 618.
 Onychorhynchus, 514.
 ophthalmica, *Spermophila*, 609.
 Sporophila, 609.
 ophthalmicus, *Pogonotriccus*, 493.
 Opisthocomidæ, 174.
 Opisthocomiformes, 174.
 Opisthocomus, 47, 174, 736.
 Opisthoprora, 319.
 Oporornis, 595.
 orbitalis, *Capsiempis*, 493.
 Pogonotriccus, 493.

- Orchilus, 492.
 Oreomanes, 641.
 Oreopeleia, 171.
 Oreophilus, 191.
 Oreothraupis, 690.
 Oreotriccus, 494.
 Oreotrochilus, 112, 117, 301.
 orientalis, Basileuterus, 601.
 Capito, 343.
 Eubucco, 343.
 Ochthoeca, 474.
 Orioles, 690.
 ornata, Hypocnemis, 392.
 Myrmotherula, 392.
 Nemosia, 683.
 Thlypopsis, 683.
 ornatus, Cephalopterus, 553.
 Myiobius, 518.
 Ornithion, 502.
 Oroaëtus, 236.
 Orochelidon, 555.
 Orodynastes, 472.
 Oropendulas, 690.
 Oropezus, 421.
 Ortalis, 155.
 orthonyx, Acropternis, 374.
 Merulaxis, 374.
 Orton, James, work of, 12.
 ortoni, Lesbia, 322.
 Penelope, 153.
 Zodalia, 322.
 oryzivora, Cassidix, 696.
 Fringilla, 697.
 oryzivorus, Dolichonyx, 697.
 Oriolus, 696.
 Oryzoborus, 607.
 Osculati, Gaetano, Explorations of, 9.
 Osculatia, 171; map of distribution of, 53.
 oseryi, Cassicus, 690.
 Clypeicterus, 690.
 Trochilus, 286.
 Ospreys, 219.
 Ostinops, 691.
 Otus, 246.
 Ovenbirds, 424.
 Owls, 243.
 Oxyechus, 193.
 Oxygogon, 117.
 Oystercatchers, 190.
 Pachyrhamphus, 541.
 Pachysylvia, 588.
 pacifica, Compsothlypis, 592.
 Myrmotherula, 390.
 Parula, 592.
 Pipromorpha, 498.
 Pyrrhura, 56.
 Volatinia, 614.
 pacificus, Cacicus, 694.
 Craspedoprion, 483.
 Curucujus, 335.
 Cyanerpes, 645.
 Myiozetetes, 510, 738.
 Phænostictus, 410.
 pagana, Elainea, 506.
 Pagolla, 193.
 pallatangæ, 507.
 pallens, Zenaida, 165.
 pallescens, Campylorhynchus, 563.
 Cercomacra, 398.
 Heleodytes, 563.
 palliatus, Dendromis, 464.
 Falco, 238.
 Hæmatopus, 190.
 Odontriorchis, 238.
 Xiphorhynchus, 464.
 pallida, Caica, 267.
 Leptotila, 170.
 Myrmotherula, 394.
 Pionites, 267.
 pallidiceps, Buarremon, 636.
 pallidigula, Euchlornis, 550.
 pallidigularis, Automolus, 445.
 pallidinuchus, Buarremon, 634.
 Carenochrous, 634.
 pallidipectus, Troglodytes, 570.
 pallidiventris, Myioborus, 596.
 Setophaga, 596.
 pallidus, Thinocorus, 65, 190.
 palmarum, Tanagra, 673.
 palpebrosa, Pœcilothraupis, 668, 737.
 Tanagra, 668.
 pamprepta, Topaza, 301.
 Panama, Life Zones of, 32.
 panamensis, Crax, 151.
 Malacoptila, 357.
 Nyctibius, 274.
 Tachyphonus, 680.
 Pandion, 243.

- Panyptila, 281.
 papa, Gypagus, 216.
 Sarcorhamphus, 216.
 Vultur, 216.
 papallactæ, Atlapetes, 102, 634.
 Buarremon, 634.
 Parabuteo, 223.
 paradisæa, Sterna, 187.
 parambæ, Attila, 546.
 Elænia, 509.
 Grallaria, 416.
 Odontophorus, 160.
 Serpophaga, 509.
 parambanus, Turdus, 581.
 Paramo Zone, Boundaries, characteristics, and habitats of the, 110, 113; bird-life of the, 111, 113.
 paramosa, Cinnicerthia, 567.
 Pardirallus, 175.
 pareola, Chiroxiphia, 534.
 Parker, Dr. H. B., Acknowledgments to, 5, 6; expedition with, 16.
 Paroaria, 629.
 Parrakeets, 253.
 Parrots, 253.
 Partridges, 159.
 parulus, Anæretes, 495.
 Serpophaga, 495.
 parvistriatus, Picumnus, 371.
 parvula, Aglæactis, 309.
 parvulus, Caprimulgus, 278.
 Setopagis, 278.
 parvus, Tyranniscus, 506.
 parzudakii, Calliste, 664.
 Calospiza, 664.
 Heliotrypha, 316.
 Tanagra, 664.
 Tangara, 664.
 Passeriformes, 372.
 passerina, Chæmepelia, 166.
 Columbigallina, 166.
 Psittacula, 261.
 passerinus, Coturniculus, 624.
 pastazæ, Galbula, 352.
 Patagona, 112, 290.
 patagonica, Pygochelidon, 557.
 Patterson, W. F., Acknowledgments to, 6.
 paucalensis, Melanopareia, 38, 376, 377.
 paucimaculatus, Pheugopedius, 568.
 Thryothorus, 568.
 paulus, Spinus, 621.
 pauper, Spermophila, 612.
 pauxilla, Gallinula, 178.
 pavoninus, Diplopterus, 340.
 Dromococeyx, 340.
 Pharomachrus, 330, 736.
 Trogon, 330.
 pectoralis, Astur, 223.
 Bucco, 355.
 Glyphorhynchus, 455.
 Notharchus, 355.
 Nyctibius, 274.
 Tringa, 199.
 Pelecanidæ, 215.
 Pelecaniformes, 213.
 Pelicans, 215.
 Pelecanus, 215.
 pelzelni, Euphonia, 649.
 Myiarchus, 527.
 Pseudotriccus, 489.
 Tanagra, 649.
 Penard, T. E., Acknowledgments to, 6.
 pencillata, Eucometis, 682.
 Tanagra, 682.
 penduliger, Cephalopterus, 553.
 Penelope, 152.
 Pennell, Fracis W., On Life-Zones in Colombia, 31.
 pennsylvanicus, Buteo, 230.
 pentlandi, Tinamotis, 151.
 perdix, Rhynchotis, 151.
 periophthalmica, Grallaria, 422.
 Hylopezus, 422.
 perlata, Margarornis, 453.
 Strix, 253.
 perlatus, Sittasomus, 453.
 perniger, Cathartes, 217.
 pernix, Ochthodietæ, 473.
 persicus, Cacicus, 693.
 personata, Diglossa, 639, 736.
 Tityra, 538.
 Trogon, 330.
 personatus, Agrilorhinus, 639.
 Schistes, 323.
 Trogonurus, 330.
 perspicillata, Grallaria, 422.
 Pulsatrix, 245.

- Peru, Characters of, 3.
 peruana, Hemithraupis, 682.
 Monasa, 358.
 peruanus, Coturniculus, 625.
 Pachyrhamphus, 541.
 Spinus, 621.
 peruviana, Brachyspiza, 626.
 Cerchneis, 242.
 Conopophaga, 377.
 Hypocnemis, 407.
 Margarornis, 453.
 Pithys, 401.
 Pygochelidon, 557.
 Pyrgita, 626.
 Rupicola, 547.
 Schizoeaca, 427.
 peruvianus, Bucco, 342.
 Capito, 342.
 Chloronerpes, 364.
 Microbates, 561.
 Myiobius, 517.
 Rhynchocyclus, 484.
 Saltator, 618.
 Steatornis, 267.
 peruviansis, Buteo, 228.
 Petrels, 182.
 Petrochelidon, 558.
 Phænostictus, 410; map of distribution
 of, 57.
 phæocephalus, Chlorospingus, 684.
 Cyphorhinus, 574.
 Leucolepis, 574.
 Myiarchus, 528.
 phæochroa, Dendrocincla, 460.
 Phæomyias, 502.
 Phæoprogne, 555.
 phæopygia, Æstelata, 184.
 Pterodroma, 184.
 phæopygus, Turdus, 580.
 Phaëthon, 215.
 Phaëthontidæ, 215.
 Phaëtusa, 185.
 Phaiolaima, 303.
 Phalacrocoracidæ, 213.
 Phalacrocorax, 213, 736.
 phalænoides, Glaucidium, 252.
 Phalaropes, 190.
 Pharomachus, 328, 736.
 Pheucticus, 605.
 Pheugopedius, 565.
 philadelphia, Geothlypis, 595.
 Oporornis, 595.
 Sylvia, 595.
 Philydor, 446.
 Phlegopsis, 409.
 Phlæocestes, 367.
 Phlogophilus, 314.
 Phœnicercus, 546.
 phœnicomitra, Myiophobus, 519.
 Phœnicopteridæ, 209.
 Phœnicopteriformes, 209.
 Phœnicopterus, 209.
 phœnicotis, Calliste, 654.
 Chlorochrysa, 654.
 phœnicura, Tyrannula, 518.
 phœnicurus, Myiobius, 518.
 Myiotriccus, 518.
 Phœthornis, 284.
 Phrygilus, 627.
 Phyllomyias, 501.
 Phytotoma, 554.
 Phytotomidæ, 554.
 Piaya, 337.
 picatum, Todiostrostrum, 487.
 picatus, Bucco, 355.
 Notharchus, 355.
 picea, Pyriglena, 401.
 pichincha, Oreotrochilus, 302.
 Synallaxis, 435.
 pichinchæ, Falco, 239.
 Picidæ, 359.
 Piciformes, 351.
 Picolaptes, 424.
 Piculets, 359.
 Picumnus, 370.
 Piezorhina, 608.
 Pigeons, 162.
 pileata, Zonotrichia, 626.
 pileatus, Accipiter, 225.
 Crypturus, 149.
 Euscarthmus, 492.
 Falco, 225.
 Lophotriccus, 492.
 Orchilus, 490.
 pinnata, Ardea, 208.
 pinnatus, Botaurus, 208.
 Pionias, 265.
 Pionites, 267.

- Pionus, 264.
 Pipile, 155.
 pipile, Penelope, 155.
 pipiri, Lanius, 529.
 Pipits, 604.
 Pipra, 530.
 Pipræidea, 654.
 Pipridæ, 530.
 Piprites, 534.
 Pipromorpha, 498.
 Piranga, 676.
 Pisobia, 199.
 pitanay, Hæmatopus, 190.
 pitangua, Lanius, 514.
 Megarhynchus, 514.
 Pitangus, 511, 736.
 Pithys, 401.
 pitiayumi, Compsorthypis, map showing
 distribution of, in South America,
 89.
 Parula, 592.
 Pittasoma, 415.
 Pitylus, 615.
 piuræ, Chlorospingus, 736.
 Sakesphorus, 384.
 Synallaxis, 38.
 Thamnophilus, 384.
 placens, Elainea, 507.
 Placophorus, 304.
 Placostomus, 483.
 Plant-Cutters, 554.
 Plataleidæ, 204.
 platensis, Mimus, 577.
 Platypsaris, 540.
 platypterus, Buteo, 230.
 Sparvius, 230.
 platyrhynchum, Electron, 271.
 Platyrhynchus, 482.
 platyrhynchus, Momotus, 271.
 Prionirhynchus, 271.
 Prionornis, 271.
 Platytriccus, 482.
 plebejus, Phrygilus, 628.
 Plovers, 190.
 plumbea, Columba, 163.
 Ictinia, 239.
 Leucopternis, 234.
 plumbeiceps, Myadestes, 578.
 Nothocercus, 147.
 plumbeiceps, Oreotriccus, 494.
 Pogonotriccus, 494.
 Tyranniscus, 494.
 plumbeus, Dysithamnus, 405.
 Falco, 239.
 Micrastur, 222.
 pluricinctus, Pteroglossus, 348.
 podiceps, Podilymbus, 181.
 Podicipedidæ, 180.
 Podicipediformes, 180.
 Podilymbus, 181.
 pœcilocerca, Mecocerculus, 478.
 Serpophaga, 478.
 pœcilochrous, Buteo, 229.
 pœcilonota, Colonia, 480.
 Hypocnemis, 407.
 Pœcilothraupis, 667.
 pœcilotis, Leptopogon, 493.
 Pogonotriccus, 493.
 Pœcilotriccus, 488.
 pœcilurus, Empidochanes, 522.
 Pogonospiza, 636.
 Pogonotriccus, 493.
 poliocephala, Geothlypis, 596.
 poliocephalus, Leptopogon, 499, 500.
 Rhynchocyclus, 485.
 poliopis, Malacoptila, 357.
 Polioptila, 559.
 pollens, Agriornis, 471.
 Campephilus, 368.
 Megapicos, 368.
 Picus, 368.
 Polyborus, 219.
 Polymerata, 291.
 Polyplancta, 303.
 Pomeroy, D. E., Acknowledgments to, 5.
 Poospiza, 625.
 Popelairia, 327.
 popelairii, Popelairia, 327.
 Trochilus, 327.
 porphyrocephala, Iridosornis, 667.
 porphyrolæma, Cotinga, 551, 736.
 portovelæ, Myiobius, 516.
 Porzana, 177.
 Premnoplex, 454.
 Premnornis, 454.
 pretiosa, Claravis, 167.
 Peristera, 167.
 prevosti, Cassiculus, 695.

- prevosti, Cassicus, 695.
- primolina, Laticauda, 317.
 - Metallura, 317.
- princeps, Leucopternis, 235.
- Problem, The, herein considered, 4.
- Procellariidæ, 182.
- Procellariiformes, 182.
- procerus, Xiphocolaptes, 466.
- Procnopis, 654.
- Progne, 555.
- promeropirhynchus, Dendrocolaptes, 464.
 - Xiphocolaptes, 464.
- propinqua, Columba, 163.
 - Synallaxis, 433.
- propinquus, Trogon, 330.
- Protonotaria, 592.
- pruinus, Chordeiles, 276.
- Psalidoprymna, 321.
- Pseudocolaptes, 438, 736.
- Pseudomyiobius, 489.
- Pseudospingus, 689.
- Pseudotriccus, 489.
- Psittacidæ, 253.
- Psittaciformes, 253.
- Psittacula, 260.
- Psittospiza, 689.
- Psophia, 47, 203.
- Psophiidæ, 203.
- Pterodroma, 184.
- Pteroglossus, 348.
- Pterophanes, 309.
- Ptiloscelys, 191.
- pucherani, Campylorhamphus, 470.
 - Centurus, 362.
 - Melanerpes, 362.
 - Tripsurus, 362.
 - Xiphorhynchus, 470.
 - Zebicapicus, 362.
- pudica, Synallaxis, 432.
- Puffbirds, 353.
- Puffinus, 183.
- pulchella, Ochthoeca, 474.
- pulcher, Melanerpes, 362.
 - Myiobius, 519.
 - Myiophobus, 519.
- pulcherrima, Dacnis, 647.
 - Iridophanes, 647.
- pulchra, Calliste, 657.
 - Calospiza, 657.
- pulchra, Cyanolyca, 701.
 - Eucinetus, 266.
 - Pionopsitta, 266.
- pulmentum, Bucco, 356.
 - Nystactes, 356.
- Pulsatrix, 245.
- pulvericolor, Anabates, 433.
- pumilus, Chlorostilbon, 296.
- punctata, Calliste, 656.
- punctatissima, Strix, 253.
- punctatus, Capito, 342.
- puncticeps, Thamnophilus, 382.
- punctigula, Chamæza, 413.
 - Dendroornis, 462.
- punctipectus, Dysithamnus, 389.
- punctulata, Calospiza, 656.
- punensis, Contopus, 525.
 - Mimus, 576.
 - Myiochanes, 525.
 - Speotyto, 250.
- purpurascens, Euphonia, 652.
 - Molothrus, 697.
 - Tanagra, 652.
- purpurata, Muscicapa, 553.
 - Osculacia, 171.
 - Querula, 552.
- purpurea, Osculatia, 171.
- purpureiceps, Heliothrix, 323.
- pusilla, Tringa, 198.
- pusillum, Eupsilostoma, 503.
 - Ornithium, 503.
- pusillus, Campylorhamphus, 469.
 - Ereunetes, 198.
 - Xiphorhynchus, 469.
- Pygiptila, 385.
- pygmæa, Formicivora, 389.
 - Myrmotherula, 389.
- Pygochelidon, 556.
- pyra, Topaza, 301.
 - Trochilus, 301.
- Pyriglena, 401.
- Pyrocephalus, 521.
- pyrrhodes, Anabates, 447.
 - Philydor, 447.
- pyrrholæmum, Electron, 271.
- pyrrholæmus, Prionirhynchus, 271.
- Pyrrhomyias, 517.
- pyrrhophrys, Chlorophonia, 649.
 - Euphonia, 649.

- pyrrhops, *Euscarthmus*, 488.
 Hapalopsittaca, 266.
 Pionopsitta, 266.
 pyrrhopterus, *Brotogeris*, 261.
 Myiobius, 517.
 Psittacus, 261.
 Pyrrhomyias, 517.
 Pyrrhura, 259.
- quadricolor, *Trichothraupis*, 667.
 quæsa, *Thraupis*, 672.
 Quails, 159.
 Querula, 553.
 quindiana, *Asthenes*, 438.
 quindio, *Turdus*, 582.
 quitensis, *Chamæpelia*, 165.
 Laticauda, 318.
 Metallura, 318.
 Tanagra, 650.
 Quito, Bird-skins from, 10.
 quixensis, *Microrhopias*, 396.
 Pyriglena, 396.
 Thamnophilus, 396.
- radiatus, *Bucco*, 356.
 Nystalus, 356.
 radiolatus, *Dendrocolaptes*, 470.
 radiolosus, *Neomorphus*, 339.
 Rails, 174.
 raimondii, *Gnathospiza*, 624.
 Phytotoma, 554.
 Rainfall, 27, 30.
 Rallidæ, 174.
 Ralliformes, 174.
 ralloides, *Myiadestes*, 578.
 Rallus, 174.
 ramoniana, *Trogon*, 335.
 ramonianus, *Chrysotrogon*, 335.
 Ramphastidæ, 344.
 ramphastinus, *Semnornis*, 344.
 Tetragonops, 344.
 Ramphastos, 344.
 Ramphocænus, 560.
 Ramphocelus, 675.
 Ramphomicron, 319.
 Ramphotrigon, 485.
 Ranges, discontinuous, significance of, 117.
 rectirostris *Doryfera*, 282.
- rectirostris, *Hemistephania*, 282.
 reevei, *Turdus*, 578.
 regina, *Lophornis*, 326.
 reguloides, *Spizitornis*, 495.
 regulus, *Grallaria*, 416.
 reini, *Agyrtria*, 291.
 Polyerata, 291.
 reinwardti, *Pteroglossus*, 350.
 Selenidera, 350.
 resplendens, *Charadrius*, 191.
 Ptiloscelys, 111, 191.
 Vanellus, 191.
 restrictus, *Heleodytes*, 563.
 Rhinoptynx, 243.
 Rhinorchilus, 574.
 Rhoads, S. N., and Lemmon, R. S.,
 collections by, 13.
 rhodinolæma, *Phœnicothraupis*, 679.
 Rhodospingus, 629.
 Rhopoterpe, 85, 410.
 Rhynchocyclus, 484.
 Rhynchops, 187.
 Rhynchortyx, 161.
 Rhynchospiza, 625.
 Richardson, William B., Acknowledg-
 ments to, 6; collections by, 14.
 richardsoni, *Capito*, 343.
 Contopus, 525.
 Eubucco, 343.
 Myiochanes, 525.
 Tyrannula, 525.
 Richmond, Dr. Charles W., Acknowledg-
 ments to, 6.
 ridgwayi, *Dendrocincla*, 457.
 Xenops, 450.
 riefferi, *Amazilia*, 292.
 Ampelis, 549.
 Euchloris, 549.
 Pipreola, 549.
 Psittospiza, 689.
 Tanagra, 689.
 riojæ, *Phæthornis*, 287.
 riveti, *Philydor*, 446.
 rivolii, *Hypoxanthus*, 359.
 rivularis, *Cinclodes*, 426.
 roboratus, *Otus*, 246.
 Roraima, life of, 4.
 Rosenberg, W. F. H., collections by,
 and for, 12.

- rosenbergi, *Caprimulgus*, 278.
 Cercomacra, 400.
 Heteropelma, 537.
 Lipaugus, 546.
 Nemosia, 682.
 Nyctiphrynus, 278.
 Pittasoma, 415.
 Polyerata, 291.
 Scotothorus, 537.
 Sipia, 400.
Rostrhamus, 237.
 rothschildi, *Bangsia*, 669.
 Buthraupis, 669.
 Cyanocompsa, 606.
 Fregata, 215.
 Guiraca, 606.
 rubineus, *Pyrocephalus*, 521.
 rubinus, *Pyrocephalus*, 40, 107.
 rubra, *Fringilla*, 676.
 Piranga, 676.
 rubricapilla, *Muscisaxicola*, 481.
 rubriceps, *Piranga*, 678.
 rubricollis, *Campophilus*, 367.
 Phloeocastes, 367.
 Picus, 367.
 rubripileus, *Chloronerpes*, 360.
 rubrirostris, *Arremon*, 686.
 Cnemoscopus, 102, 686.
 Hemispingus, 686.
 rubrocristata, *Ampelis*, 552.
 Carpornis, 552.
 Heliochera, 552.
 rubrocristatus, *Ampelion*, 552.
 rubrolarvata, *Aratinga*, 257.
 rubrolarvatus, *Conurus*, 257.
 ruckeri, *Glaucis*, 283.
 rufa, *Malacoptila*, 736.
 Muscicapa, 541.
 rufaxilla, *Heliochera*, 120, 552.
 Leptoptila, 170.
 rufescens, *Muscisaxicola*, 481.
 ruficapilla, *Grallaria*, 419.
 ruficauda, *Chameza*, 414.
 ruficaudatus, *Anabates*, 447.
 Philydor, 447.
 ruficaudus, *Anabates*, 447.
 ruficeps, *Cænotriccus*, 490.
 Gymnopathys, 402.
 Muscicapa, 490.
 ruficeps, *Ortalida*, 155.
 Pœcilotriccus, 488.
 Serpophaga, 490.
 Tinamus, 145.
 Todirostrum, 488.
 ruficervix, *Calospiza*, 662.
 Stenopsis, 277.
 Systellura, 277.
 Tanagra, 662.
 Tangara, 662.
 ruficollis, *Anabazenops*, 443.
 Automolus, 79, 443, 736.
 Cathartes, 217.
 Charadrius, 191.
 Cotyle, 559.
 Egretta, 206.
 Hirundo, 559.
 Hydranassa, 206.
 Oreophilus, 105, 191.
 Stelgidopteryx, 559.
 ruficoronata, *Setophaga*, 598.
 ruficoronatus, *Myioborus*, 598.
 ruficrissa, *Urosticte*, 314.
 rufigene, *Todirostrum*, 488.
 Pœcilotriccus, 489.
 rufigula, *Calospiza*, 666.
 Tanagrella, 656.
 Tangara, 656.
 rufigularis, *Calliste*, 656.
 Calospiza, 656.
 Hypotriorchis, 240.
 rufina, *Columba*, 162.
 rufipectus, *Formicarius*, 412.
 Leptopogon, 500.
 Synallaxis, 435.
 Tyrannula, 500.
 rufistigmata, *Pyrranga*, 678.
 rufiventris, *Asthenurus*, 370.
 Euphonia, 653.
 Lurocalis, 276.
 Ortalida, 157.
 Picumnus, 370.
 Pyriglena, 396.
 Ramphocænus, 561.
 Scolopacinus, 561.
 Tanagra, 653.
 rufivertex, *Arremon*, 666.
 Iridosornis, 666.
 rufocollaris, *Petrochelidon*, 558.

- rufomarginata*, *Mecocerculus*, 477.
Ochthoeca, 477.
rufopectus, *Ochthoeca*, 475.
Tyrannulus, 475.
rufopileatum, *Pittasoma*, 415.
rufula, *Oropezus*, 421.
rufus, *Pachyrhamphus*, 541.
rumicivorus, *Thinocorus*, 105, 190.
Rupicola, 547.
Rupornis, 231.
russata, *Eriocnemis*, 311.
Vestipedes, 311.
ruticilla, *Motacilla*, 596.
Setophaga, 596.
rutila, *Coccyzus*, 338.
Piaya, 338.
rutilus, *Cuculus*, 338.
Xenops, 450.

Sakesphorus, 384.
salmoni, *Dacnis*, 682.
Erythrothlypis, 682.
Tigrisoma, 208.
Saltator, 616.
Saltators, 605.
salvadorii, *Nothocercus*, 146.
salvini, *Accipiter*, 224.
Crypturus, 149.
Cyphorhinus, 573.
Leucolepis, 573.
Mitu, 152.
Neomorphus, 339.
Nisus, 224.
Ochthoeca, 476.
Pachyrhamphus, 543.
Sclerurus, 453.
Tumbezia, 476.
sanctæthomæ, *Brotogeris*, 262.
Dendrocolaptes, 470.
Dendrocops, 470.
Psittacus, 262.
sanguineus, *Pteroglossus*, 349.
sanguinolenta, *Rupicola*, 547.
Santa Marta Mts., *Colombia*, *Life-*
Zones of, 32.
santaritensis, *Saltator*, 616.
santarosæ, *Arremon*, 630.
Sapayoa, 58, 538.
saphirina, *Osculatia*, 171.

sapphiropygia, *Eriocnemis*, 311.
sarayacuensis, *Corythopsis*, 378.
Sarcorhamphus, 216.
saturata, *Grallaria*, 421.
Myrmopagis, 392.
Myrmotherula, 392.
Phonasca, 651.
Pulsatrix, 245.
Rupicola, 547.
Tanagra, 651.
saturator, *Metriopelia*, 168.
saturatus, *Myiophobus*, 520.
Pachyrhamphus, 542.
Turdus, 580.
Xiphocolaptes, 464.
Saucerottia, 292.
saul, *Lafresnaya*, 307.
Trochilus, 307.
Sayornis, 522.
Scansores, 341.
scapularis, *Jacana*, 56, 201.
schistacea, *Asturina*, 234.
Diglossa, 639.
Leucopternis, 234.
Sporophila, 608.
Urubitinga, 234.
schistaceigula, *Poliophtila*, 560.
schistaceus, *Atlapetes*, 633.
Buarremon, 633.
Carenochrous, 634.
Tanagra, 633.
Schistes, 322.
schisticolor, *Formicivora*, 393.
Myrmotherula, 393.
schistochlamys, *Accipiter*, 225.
Schizoeaca, 426.
schliephackei, *Docimastes*, 308.
Ensifera, 308.
schranksi, *Calliste*, 655.
Calospiza, 655.
schranksii, *Tanagra*, 655.
Tangara, 655.
schreibersi, *Iolama*, 304.
Ionolaima, 304.
schreibersii, *Trochilus*, 304.
scelateri, *Agelaius*, 694.
Archiplanus, 694.
Automolus, 445.
Campephilus, 368.

- sclateri, *Camptostoma*, 503.
 Chaetura, 280.
 Chrysomitris, 621.
 Dryocopus, 368.
 Euchlornis, 549.
 Ornithion, 503.
 Picumnus, 371.
 Pipreola, 549.
 Psittacula, 261.
 Spinus, 621.
 Todirostrum, 486.
Sclateria, 405.
Sclerurus, 452.
scolopacea, *Ardea*, 202.
 Limosa, 194.
scolopaceus, *Aramus*, 202.
 Limnodromus, 194.
Scotothorus, 537.
Screamers, 209.
scutatus, *Pyroderus*, 88. .
Scytalopus, 88, 372.
Seasons, 27.
 Section through northern Ecuador, 22;
 through southern Ecuador, 24.
secunda, *Deconychura*, 462.
Seed-Snipe, 189.
segmentata, *Hydropsalis*, 276.
 Macropsalis, 276.
Seiurus, 595.
Selenidera, 85, 350.
selinoides, *Psittacus*, 265.
semicervinus, *Basileuterus*, 603.
semicinereus, *Dysithamnus*, 386.
semifasciata, *Tityra*, 538.
semifasciatus, *Pachyrhynchus*, 538.
semiflava, *Capsiempis*, 500.
 Elainea, 500.
 Geothlypis, 595.
semifuscus, *Chlorospingus*, 686.
semipagana, *Elænia*, 506.
semipalmata, *Symphemia*, 195.
semipalmatus, *Ægialitis*, 193.
 Charadrius, 193.
semiplumbea, *Leucopternis*, 235.
semiplumbeus, *Rallus*, 175.
semirufa, *Urospatha*, 270.
semirufus, *Baryphthengus*, 270.
 Momotus, 270.
Semnornis, 344.
senex, *Platyrhynchus*, 482.
senilis, *Merulaxis*, 373.
 Myornis, 373.
 Scytalopus, 373.
seniloides, *Pionus*, 265.
Sericossypha, 684.
Serpophaga, 494.
serrana, *Merula*, 579.
serranus, *Larus*, 111, 188.
 Turdus, 579.
serva, *Cercomacra*, 400.
 Pyriglena, 400.
Setopagis, 278.
Setophaga, 596.
sex-notatus, *Aulacorhamphus*, 351.
 Aulacorhynchus, 351.
Shags, 213.
Shearwaters, 182.
Sicalis, 107, 623.
Siemiradski, Joseph, and Stolzmann,
 Jean, collections by, 12.
siemiradzki, *Chrysomitris*, 621.
 Spinus, 622.
signatum, *Todirostrum*, 487.
signatus, *Chlorospingus*, 684.
similis, *Diglossa*, 637.
 Myiozetetes, 510.
 Pachyrhamphus, 543.
Simons, P. O., collections by, 13.
simonsi, *Atlapetes*, 633.
 Buarremon, 633.
 Nothoprocta, 150.
simplex, *Lipaugus*, 545.
 Muscicapa, 545.
singularis, *Synallaxis*, 438.
 Xenerpestes, 438.
Sipia, 58, 400.
Siptornis, 436.
Sirystes, 512.
Sittasomus, 460.
sitticolor, *Conirostrum*, 641.
sittoides, *Diglossa*, 637.
Skimmers, 185.
Skuas, 185.
smaragdinipectus, *Eriocnemis*, 311.
 Vestipedes, 311.
Snipes, 190.
sociabilis, *Herpetotheres*, 237.
 Rostrhamus, 237.

- Söderstrom, Ludovico, Acknowledgments to, 5; collections by, 10, 13; hospitality of, 16.
- soderstromi, Catamenia, 613.
- Heliangelus, 316.
- Odontophorus, 161.
- Oreotrochilus, 301.
- Solitaires, 577.
- solitaria, Agriornis, 471.
- Tringa, 196.
- solitarius, Amblycercus, 695.
- Cassicus, 695.
- Harpyhaliaëtus, 235.
- Helodromas, 197.
- Myiodynastes, 512.
- Totanus, 197.
- Tyrannus, 512.
- solstitialis, Hemiura, 570.
- solstitialis, Steganura, 313.
- Troglodytes, 570.
- somptuosa, Compsocoma, 669.
- Tachyphonus, 669.
- sororia, Lochmias, 426.
- souancei, Conurus, 259.
- Microsittace, 259.
- Pyrrhura, 259.
- soui, Crypturus, 149.
- souleyti, Dendrocolaptes, 467.
- Lepidocolaptes, 467.
- Picolaptes, 467.
- Sparrows, 605.
- sparverius, Tinnunculus, 241.
- Species of the Arid Temperate Zone, Distributional Analysis of, 106; of the Humid Temperate Zone, Distributional Analysis of, 104; of the Paramo Zone, Distributional Analysis of, 113; of the Subtropical Zone, Distributional Analysis of, 82, 83.
- Species, number included, 136.
- speciosa, Chloroenas, 162.
- Columba, 162.
- Formicivora, 374.
- Synallaxis, 375.
- speciosus, Odontophorus, 159.
- spectabilis, Arremon, 629.
- Celeus, 367.
- Speotyto, 65, 250.
- speratus, Saltator, 618.
- spicifer, Lophotriccus, 490.
- spiciferum, Todiostrostrum, 490.
- spilorhynchus, Andigena, Range of, 85; 347.
- spinicauda, Acanthylis, 280.
- Anas, 210.
- Chætura, 280.
- Dafila, 111, 210.
- Spinus, 4, 621.
- spirus, Glyphorhynchus, 455.
- spiza, Chlorophanes, 736.
- Spizaëtus, 236.
- Spizitornis, 495.
- splendens, Campephilus, 369.
- Cniparchus, 369.
- Volatinia, 614.
- spodiogaster, Myrmoderus, 406.
- spodionota, Myrmotherula, 391.
- spodionotus, Atlapetes, 631.
- Buarremon, 631.
- Carenochrous, 631.
- Spodiornis, 628.
- spodiurus, Pachyrhamphus, 542.
- Spoonbills, 204.
- Sporathraupis, 674, 736.
- Sporophila, 608.
- squamæcristatus, Lophotriccus, 490.
- Todiostrostrum, 490.
- squamatus, Capito, 341.
- squamicristatus, Euscarthmus, 490.
- squamigera, Grallaria, 415.
- Margarornis, 453.
- squamipectus, Euchlornis, 549.
- squamulatus, Microcerculus, 575.
- Squatarola, 192.
- squatarola, Squatarola, 192.
- Tringa, 192.
- stanleyi, Chalcostigma, 318.
- Ramphomicron, 318.
- Trochilus, 318.
- Steatornis, 267.
- Steatornithidæ, 267.
- Steganopus, 201.
- stellaris, Thamnophilus, 385.
- stellata, Hypocnemis, 406.
- Margarornis, 454.
- stellatus, Myiobius, 518.
- Myiotriccus, 518.

- stellatus, *Odontophorus*, 161.
 stenura, *Panychlora*, 297.
 stenurus, *Chlorostilbon*, 297.
Sterna, 186.
 stictolophus, *Lophornis*, 326.
 stictoptera, *Elainia*, 477.
 Urochroma, 267.
 stictopterus, *Mecocerculus*, 477.
 stictothorax, *Synallaxis*, 434.
 Stilts, 190.
 stolzmanni, *Catharus*, 585.
 Chlorothraupis, 678.
 Hæmophila, 625.
 Phœnicothraupis, 678.
 Pipra, 532.
 Rhynchospiza, 625.
 Tyrannutes, 532.
 Urothraupis, 689.
 Stone, Dr. Witmer, Acknowledgments to, 6, 13.
 Storks, 204.
 Streptoprocne, 279.
 striata, *Ardea*, 207.
 Butorides, 207.
 Dendroica, 595.
 Muscicapa, 595.
 striaticeps, *Automolus*, 441.
 Embernagra, 626.
 striaticollis, *Mionectes*, 90, 496.
 Myiotheretes, 472.
 Orodynastes, 472.
 Philydor, 448.
 Siptornis, 436.
 Synallaxis, 436.
 Tænioptera, 472.
 striatidorsus, *Automolus*, 441.
 striatipectus, *Saltator*, 618; map showing distribution of races of, 68.
 Strigiformes, 243.
 strigilatus, *Ancistrops*, 449.
 Thamnophilus, 449.
 Trogon, 334.
 striigularis, *Phæthornis*, 287.
 Pygmornis, 287.
 striolata, *Pipra*, 532.
 striolatus, *Bucco*, 356.
 Machæropterus, 532.
 Nystalus, 356.
 Strong, Benjamin, Acknowledgments to, 5.
 strophianus, *Heliangelus*, 315.
 Trochilus, 315.
 stygius, *Asio*, 244.
 Nyctalops, 244.
 subalaris, *Anabates*, 449.
 Anabazenops, 449.
 Lathria, 544.
 Lipaugus, 544.
 Xenicopsis, 449.
 Xenotistes, 449.
 subbrunneus, *Cnipodectes*, 515.
 Cyclorhynchus, 515.
 subfulvus, *Philydor*, 448.
 subgrisea, *Oreopeleia*, 173.
 subplacens, *Elænia*, 508.
 subplumbea, *Sclateria*, 405.
 subplumbeus, *Dysithamnus*, 405.
 subpudica, *Synallaxis*, 432.
 subrufescens, *Momotus*, 272.
 Phæthornis, 287.
 subruficollis, *Tringa*, 198.
 Tryngites, 198.
 Subspecies, Criteria for determination of, 135.
 subspeciosa, *Synallaxis*, 374.
 subtectus, *Bucco*, 355.
 Notharchus, 355.
 subtilis, *Urubitinga*, 233.
 Subtropical Zone, Boundaries and Characteristics of, 4; development of, 124; Habitats of, 79; Peruvian extension of, 77; bird-life of, 81; bird-life of eastern division of, 86; of Peruvian extension, 86.
 subtropicalis, *Chlorophanes*, 646.
 subulatus, *Automolus*, 443.
 Hyloctistes, 443.
 subvinacea, *Columba*, 164.
 Sula, 214.
 sulcirostris, *Crotophaga*, 341.
 Sulidæ, 214.
 sulphuratus, *Lanius*, 511.
 Pitangus, 511.
 sulphurescens, *Rhynchocycclus*, 484.
 Sumaco, Mt., collections on, 17.
 sumaco, *Thripadectes*, 442.
 Sumner, Graham, Acknowledgments to, 5.
 Sun-Bitterns, 203.

- sunensis*, *Myrmotherula*, 394.
Pheugopedius, 566.
superciliaris, Arremon, 687.
Burhinus, 71, 202.
Chlorospingus, 687.
Hemispingus, 687.
Leptopogon, 499.
Ædicnemus, 202.
Placostomus, 483.
Platyrhynchus, 483.
Saltator, 617.
Thryophilus, 564.
Thryothorus, 564.
superciliosus, *Accipiter*, 224.
Falco, 224.
surinamensis, *Chlidonias*, 185.
Myrmotherula, 390.
Sterna, 185.
surinamus, *Tachyphonus*, 681.
swainsoni, *Buteo*, 230.
Gampsonyx, 238.
Hyllocichla, 584.
Ramphastos, 344.
Turdus, 584.
Swallow-Tanagers, 648.
Swallows, 554.
Swans, 209.
Swifts, 279.
Sylviidæ, 559.
sylvioides, *Sittasomus*, 460.
Synallaxis, 428.
syrmatophorus, *Phoebastria*, 286.
Systellura, 277.

Tabular Synopsis, by Families, of the
Distribution of Resident Ecua-
dorean birds, 122.
Tachyphonus, 679.
taczanowskii, *Grallaria*, 419.
Icterus, 699.
Sycalis, 624.
tæniata, *Dubusia*, 672.
Tanagra, 672.
tæniatus, *Microceræulæ*, 575.
Morphnus, 235.
Tanagers, 648.
Tanagra, 649.
Tanagrella, 653.
Tanagridæ, 648.

tanagrinus, *Lampropsar*, 738.
Tangara, 655.
tao, *Tinamus*, 145.
Tapacolas, 371.
Tapera, 340.
tapera, *Progne*, 555.
Taphrospilus, 290.
Taraba, 379.
Tate, G. H. H., Acknowledgments to, 6;
collections by, 16, 18.
tayazu-guira, *Nycticorax*, 206.
taylori, *Calliste*, 662.
telasco, *Spermophila*, 609.
Sporophila, 38, 609.
temmincki, *Ornismya*, 308.
Pterophanes, 309.
Temperate Zone, Boundaries and Char-
acteristics, 95; Arid division of,
97, 113; Habitats of, 98; Humid
division of, 96; Bird-life of, 99,
102; Bird-life of arid division, 104;
Bird-life of humid division, 101;
Origin of bird-life of, 106.
Temperature, 28.
temperatus, *Trogonurus*, 332.
temporalis, *Anabates*, 448.
Anabazenops, 448.
Xenicopsis, 448.
Xenicopsoides, 448.
tenebrosa, *Chelidoptera*, 359, 736.
Cuculus, 359.
tenuifasciatus, *Thamnophilus*, 382.
tenuipunctatus, *Thamnophilus*, 382.
tenuirostris, *Xenops*, 452.
Terenotriccus, 517.
Terenura, 397.
Terns, 185.
tersa, *Procnias*, 648.
Tersina, 648.
Tersinidæ, 648.
tertia, *Aulia*, 545.
Laniocera, 545.
texensis, *Myiozetetes*, 510.
thalassina, *Calliste*, 661.
Thalurania, 297.
Thamnistes, 385.
Thamnocharis, 415, 736.
Thamnomanes, 389.
tharus, *Polyborus*, 219.

- thaumasta, Zodalia, 322.
 theresæ, Conopophaga, 409.
 Hylophylax, 409.
 Hypocnemis, 409.
 Theristicus, 203.
 Thick-knees, 202.
 Thinocorus, 65, 190.
 Thinocorythidæ, 189.
 Thlypopsis, 683.
 thoracicus, Campylorhamphus, 469.
 Formicarius, 413.
 Xiphorhynchus, 469.
 Thrashers, 576.
 Thraupis, 672.
 Threnetes, 283.
 Thripadectes, 441.
 Thripophaga, 440.
 Thrushes, 577.
 Thryophilus, 564.
 tibialis, Atticora, 556.
 tigrinum, Tigrisoma, 208.
 Tigrisoma, 208.
 Tinamidæ, 145.
 Tinamiformes, 145.
 Tinamous, 145.
 Tinamus, 145.
 tinochlora, Boissonneau, 310.
 tinus, Accipiter, 224.
 tithys, Synallaxis, 434.
 Tityra, 538.
 tocard, Rhamphastos, 344.
 Todd, W. E. Clyde, Acknowledgments to, 6.
 Todd, W. E. Clyde, and Carriker, M. A., Jr., On Life-Zones in the Santa Marta Group, 32.
 Todiostrostrum, 486.
 tombacea, Galbula, 352.
 Topaza, 301.
 torquata, Alcedo, 268.
 Bourcieria, 305.
 Ceryle, 268.
 Helianthea, 305.
 Megaceryle, 268.
 Myrmornis, 410.
 Ornismya, 305.
 torquatus, Formicarius, 410.
 torridus, Attila, 546.
 Totanus, 196.
 trailli, Empidonax, 523.
 Muscicapa, 523.
 transandeanus, Taraba, 380.
 Thamnophilus, 380.
 transandinus, Leptopogon, 500.
 transfasciatus, Crypturus, 150.
 triangularis, Dendrocolaptes, 462.
 Dendroornis, 462.
 Xiphorhynchus, 462.
 tricolor, Steganopus, 201.
 Tringa, 196.
 trinitatis, Ramphocænus, 560.
 Tripsurus, 362.
 tristriatus, Basileuterus, 599.
 Myiodioides, 599.
 trivittata, Phlegopsis, 410.
 Trochilidæ, 281.
 trochilirostris, Xiphorhynchus, 469.
 Troglodytes, 569.
 Troglodytidæ, 562.
 Trogon, 334.
 Trogones, 328.
 Trogonidæ, 328.
 Trogons, 328.
 Trogonurus, 330.
 Tropic Birds, 215.
 Tropical Zone, Boundaries and Characteristics of the, 33; Habitats of, 41; Separation of, 44.
 Trumpeters, 203.
 Trupialis, 698.
 Tryngites, 198.
 tschudii, Ampelioides, 548.
 Chamaepetes, 157.
 Hemipipo, 534.
 Piprites, 534.
 Piranga, 677.
 Thalurania, 298.
 tuberculifer, Myiarchus, 529.
 Tyrannus, 529.
 tucuyensis, Dysithamnus, 388.
 tui, Brotogerys, 262.
 tumbezana, Myiopatis, 502.
 Phaemyias, 502.
 Phyllomyias, 502.
 Tumbezia, 476.
 turcosa, Cyanocitta, 701.
 Cyanolyca, 701.
 Xanthura, 702.

- Turdidæ, 577.
 turdina, *Chamaeza*, 414.
 turdinus, *Anabates*, 444.
 Automolus, 444.
 Turdus, 578.
 Turnstones, 190.
 Tweedy, Alexander, Acknowledgments
 to, 5; expeditions with, 16.
 typica, *Cœligena*, 306.
 Juliamyia, 295.
 Procnias, 648.
 Tyranneutes, 532.
 Tyrannidæ, 471.
 tyrannina, *Cercomacra*, 398.
 Dendrocincla, 457.
 Pyriglena, 398.
 tyranninus, *Dendrocops*, 457.
 Tyranniscus, 504.
 Tyrannulus, 504.
 tyrannulus, *Muscicapa*, 527.
 Myiarchus, 527.
 Tyrannus, 529.
 tyrannus, *Lanius*, 529.
 Milvulus, 530.
 Muscicapa, 530.
 Muscivora, 530.
 Tyrannus, 529.
 tyrianthina, *Laticauda*, 317.
 Metallura, 317.
 Trochilus, 317.
 Tyto, 253.

 Umbrella-birds, 538.
 uncinatus, *Chondrohierax*, 238.
 Falco, 238.
 Leptodon, 238.
 undatus, *Celeus*, 366.
 undulatus, *Zebrilus*, 736.
 unduliger, *Taraba*, 379.
 Thamnophilus, 379.
 unibrunnea, *Cinnicerthia*, 102, 562.
 Limnornis, 562.
 Triothorus, 562.
 unincincta, *Erythrocnemis*, 223.
 Urubitinga, 223.
 unincinctus, *Spizigeranus*, 223.
 unicolor, *Buteo*, 227.
 Dysithamnus, 380.
 Phrygilus, 129, 627.
 unicolor, *Scytalopus*, 372.
 Thamnophilus, 380.
 uniformis, *Neocerex*, 178.
 unirufa, *Cinnicerthia*, 562.
 Lathria, 544.
 Synallaxis, 434.
 unitorques, *Malacoptila*, 356.
 Upucerthia, 425.
 Urochroa, 302.
 Urochroma, 267.
 urochrysa, *Chalybura*, 299.
 Hypuroptila, 299.
 Uropsalis, 276.
 uropygialis, *Basileuterus*, 603.
 Cacicus, 694.
 Cotyle, 559.
 Mecocerculus, 504.
 Stelgidopteryx, 559.
 Tyranniscus, 504.
 Urosticte, 313.
 Urothraupis, 689.
 Urubamba Valley, Peru, Life Zones of,
 32.
 Urubitinga, 233.
 urubitinga, *Falco*, 233.
 Urubitinga, 233.
 urumutum, *Crax*, 152.
 Nothocrax, 152.

 vagans, *Creciscus*, 178.
 valida, *Sicalis*, 623.
 validus, *Dendrocolaptes*, 470.
 varia, *Mniotilta*, 592.
 Motacilla, 592.
 variegata, *Sula*, 214.
 variegatus, *Dysporus*, 214.
 Pachyrhamphus, 542.
 vassori, *Diva*, 654.
 Procnopis, 654.
 vassorii, *Tanagra*, 654.
 velutina, *Pipra*, 532.
 venezuelensis, *Myadestes*, 578.
 Pipraeidea, 654.
 Veniliornis, 362, 736.
 ventralis, *Accipiter*, 224.
 venusta, *Calliste*, 665.
 Calospiza, 665.
 Tangara, 665.
 veraguensis, *Geotrygon*, 172.

- veraguensis, Oreopeleia, 172.
- Verreaux Freres, Collections from Ecuador, 9.
- verreauxi, Leptotila, 168.
 - Lophornis, 327.
- versicolor, Pachyrhamphus, 541.
 - Vireo, 541.
- verticalis, Creurgops, 681.
 - Myioborus, 597.
 - Nemosia, 689.
 - Pseudospingus, 689.
 - Setophaga, 596.
- verticeps, Thaluranina, 298.
 - Trochilus, 298.
- Vestipedes, 310.
- victoriæ, Lesbia, 321.
 - Psaliidoprymna, 321.
- victorini, Compsocoma, 670.
- viduata, Myrmotherula, 391.
- vigua, Carbo, 213.
 - Hydrocorax, 213.
 - Phalacrocorax, 213, 736.
- Villavicencio, Manuel, in Napo Region, 9.
- villavicencio, Campylopterus, 289.
 - Trochilus, 289.
- villosus, Myiobius, 516.
 - Phæthornis, 286.
- viola, Heliangelus, 316.
 - Heliotrypha, 316.
- violacea, Nyctanassa, 207.
 - Nycticorax, 207.
- violaceus, Cyanocorax, 701.
- violea, Cassidix, 696.
- violicollis, Heliangelus, 315.
- violilavata, Tanagra, 673.
 - Thraupis, 673.
- virens, Contopus, 525.
 - Muscicapa, 525.
 - Myiochanes, 525.
- virenticeps, Cyclarhis, 591.
- Vireolanius, 590.
- Vireonidæ, 586.
- Vireos, 586.
- Vireosylva, 586.
- virescens, Brotogeris, 261.
 - Butorides, 207.
 - Empidonax, 523.
 - Pipra, 532.
 - Platyrrhynchus, 523.
- virescens, Psittacus, 261.
- virgata, Aphriza, 192.
 - Ciccaba, 248.
- virgaticeps, Thripadectes, 442.
- virgatum, Syrniun, 248.
- virgatus, Hyloctistes, 443.
 - Xiphocolaptes, 465.
- virginalis, Trogon, 333.
 - Trogonurus, 333.
- virginianus, Caprimulgus, 275.
 - Chordeiles, 275.
 - Rallus, 119, 174.
- viridiceps, Agyrtria, 290.
 - Mionectes, 496.
 - Rhynchoocyclus, 485.
 - Thaumatias, 290.
- viridipectus, Thaluranina, 298.
- viridis, Oriolus, 691.
 - Ostinops, 691.
 - Trogon, 334.
- vitellinus, Cacicus, 693.
- vitriolina, Calliste, 658.
 - Calospiza, 658.
 - Tangara, 658.
- vitticeps, Chlorostilbon, 297.
 - Prasitis, 297.
- vividior, Vireo, 587.
- vociferus, Charadrius, 193.
 - Oxyechus, 193.
- Volatinia, 614.
- von Linde, Otto, Acknowledgments to, 5.
- Vulcanism, effects of, 120.
- Vultur, 216.
- Vultures, 216.
- wagleri, Cacicus, 691.
 - Eucorystes, 691.
 - Ocyalus, 691.
 - Zarhynchus, 691.
- Wagtails, 604.
- wallacii, Heteropelma, 537.
- warscewicz, Dives, 699.
 - Lamprosar, 699.
- warszewiezi, Picolaptes, 466.
- Watkins, Harry, Collections by, 15, 19;
 - explorations by, 77.
- watkinsi, Grallaria, 420.
- watsoni, Ephialtés, 246.
 - Otus, 246.

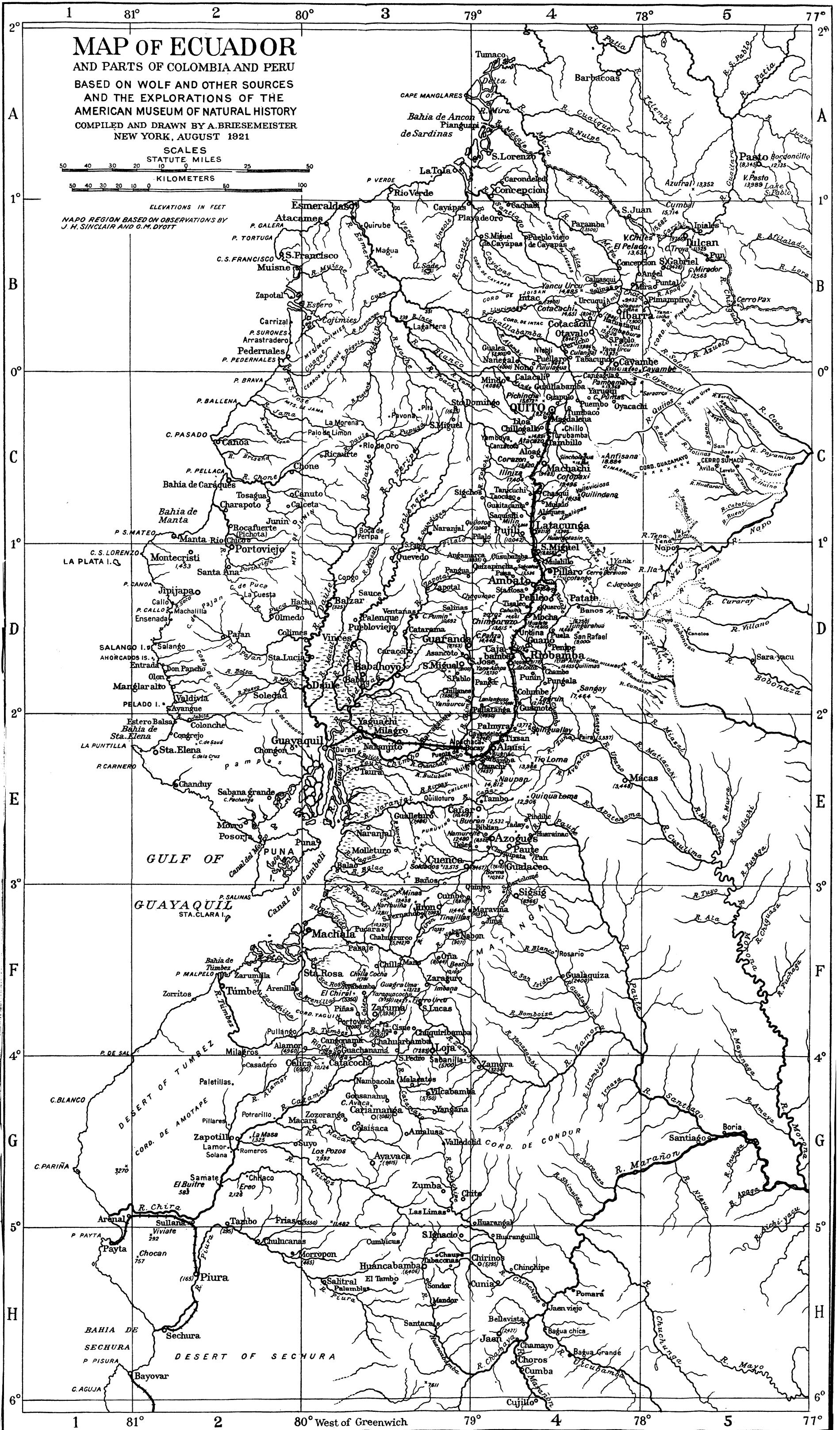
- weddelli, *Aratinga*, 257, 736.
 Conurus, 257.
 wilsoni, *Helianthea*, 306.
 Homophania, 306.
 Lampropygia, 306.
 Ochthodromus, 193.
 Trochilus, 306.
Wilsonia, 596.
 wilsoniana, *Ægialitis*, 193.
 Wolf, Dr. Theodore, on Humboldt Current, 30; work on Ecuador, 33.
 wolfe, *Aramides*, 175.
 Wood-Hewers, 455.
 Woodpeckers, 359.
 Wood-Warblers, 592.
 Wrens, 562.
 wyatti, *Siptornis*, 437.
 Synallaxis, 437.

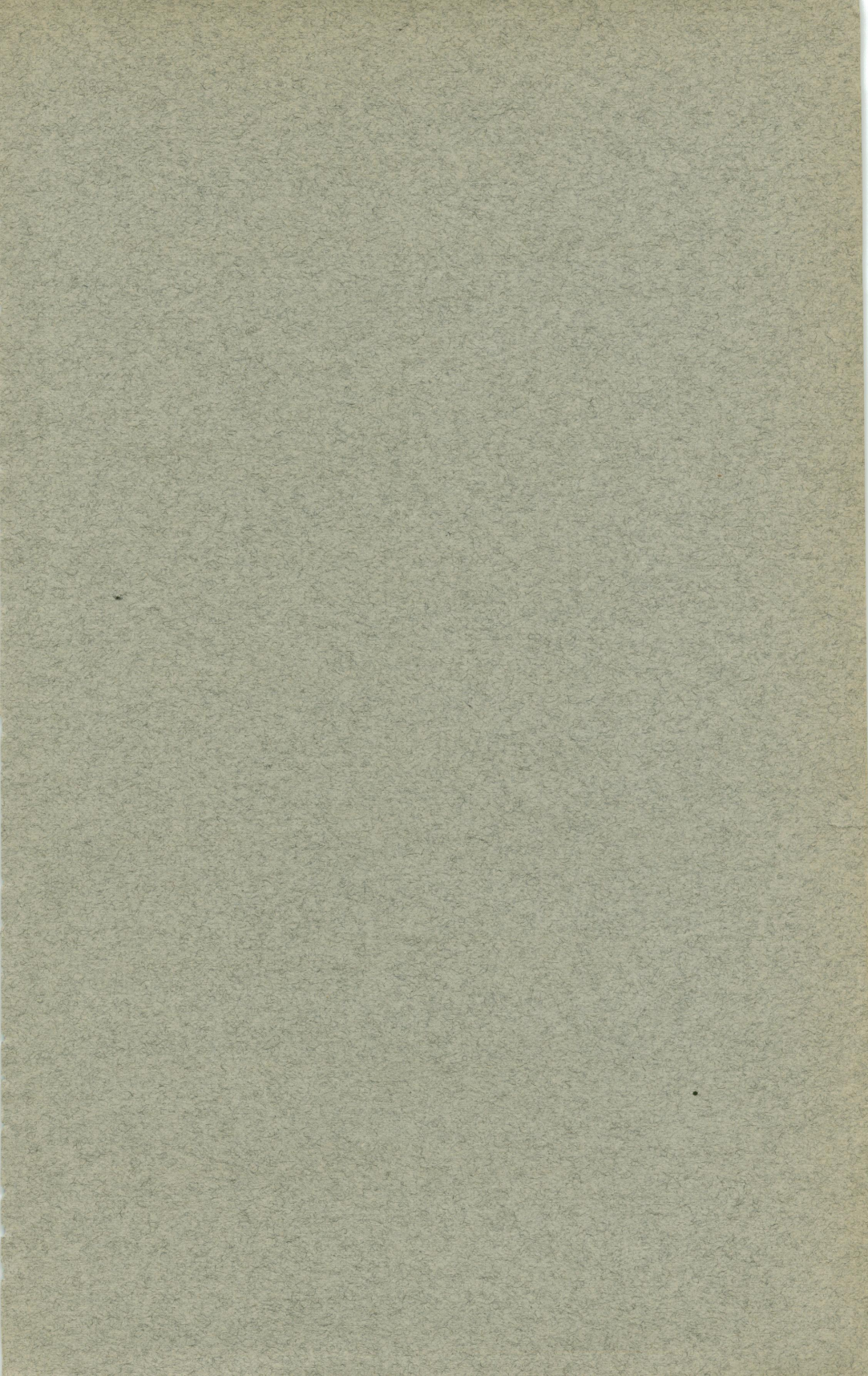
 xanthocephala, *Tangara*, 665.
 xanthogaster, *Spinus*, 621.
 xanthogastra, *Calliste*, 656.
 Chrysomitris, 621.
 Euphonia, 650.
 Tangara, 656.
 xanthogenys, *Pachyrhamphus*, 541.
 xantholæma, *Icterus*, 698.
 xanthopygius, *Heterospingus*, 679.
 Tachyphonus, 679.
 Xanthoura, 88, 701.
 Xenerpestes, 438.
 Xenicopsoides, 448.
 Xenotistes, 449.
 Xenops, 450.
 Xiphocolaptes, 464.
 Xiphorhynchus, 462.

 yapura, *Crypturus*, 149.
 Pezus, 149.

 yaruqui, *Phœthornis*, 285.
 Trochilus, 285.
 yeni, *Calliste*, 655.
 yetapa, *Elanoides*, 237.
 yncas, *Corvus*, 701.
 Cyanocorax, 701.
 Xanthoura, 701.
 yuracares, *Cassicus*, 691.
 yuracarium, *Cacicus*, 691.
 Gymnostinops, 691.

 Zamelodia, 606.
 zamoræ, *Formicarius*, 411.
 Myospiza, 625.
 Platytricus, 482.
 Rupornis, 232.
 Sclerurus, 452.
 Tangara, 656.
 Zarhynchus, 691.
 zarumæ, *Grallaricula*, 423.
 Myiochanes, 524.
 Thamnophilus, 87, 382; map showing distribution of, 92.
 Zebrilus, 736.
 zeledoni, *Acrochordopus*, 501.
 Canceroma, 207.
 Cochlearius, 207.
 Pogonotriccus, 501.
 Zenaida, 164.
 zimмери, *Myrmotherula*, 394.
 Zodalia, 322.
 Zonal species, age of, 4.
 zonaris, *Chætura*, 279.
 Hemiprocne, 279.
 zonatoides, *Campylorhynchus*, 563.
 zonatus, *Heleodytes*, 563.
 zonura, *Urubitinga*, 233.
 zosterops, *Euscarthmus*, 488.





PUBLICATIONS

OF

THE AMERICAN MUSEUM OF NATURAL HISTORY

MEMOIRS

Volume I. Zoölogy and Palæontology.

Volumes II-VIII. Anthropology.

Volume IX. Zoölogy and Palæontology.

Volumes X-XIV. Anthropology.

Volumes II, IV, V, VII, VIII, X-XIV, and an Ethnographical Album form
Volumes I-X of the Memoirs of the Jesup North Pacific Expedition.

MEMOIRS—NEW SERIES

Volumes I and II. Zoölogy and Palæontology.

Volume III, part 1. Entomology.

Volume III, parts 2 and 3. Palæontology.

BULLETIN

Volumes I-XXIV, XXV, parts 1 and 2, and XXVI-LII; LV.

NOVITATES

Numbers 1-222.

ANTHROPOLOGICAL PAPERS

Volumes I-XVIII, XIX, parts 1-6; XX-XXII; XXIII, parts 1-7; XXIV,
parts 1-6; XXV; XXVI, parts 1-4; XXVII.

MONOGRAPHS

A Review of the Primates. By D. G. Elliot, 3 volumes.

Hitherto Unpublished Plates of Tertiary Mammals and Permian Vertebrates.
By E. D. Cope and W. D. Matthew.

THE AMERICAN MUSEUM JOURNAL

Volumes I-XXV. The Journal is a popular record of the progress of the American Museum of Natural History, issued bimonthly.

HANDBOOKS. Numbers 1-12.

GUIDE LEAFLETS. Numbers 1-63.

ANNUAL REPORTS. First (1869) to Fifty-seventh (1925).

A more detailed list, with prices, of these publications may be had upon application to the Librarian of the Museum.